THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.2

No. XIV. OF VOL. II., 1926. **No. 5379. Vol. CCXI.** LONDON, SATURDAY, OCTOBER 2, 1926 Founded 1823. Registered as a Newspaper. Published Weekly. Pp. 112 – Price 1s. Annual Subscription Inland £2 2s. Abroad £2 10s

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 4.

THE RADIUM INSTITUTE, LONDON.

Just Published. Cloth. Demy 8vo. Art Paper. Pp. xii. + 41. Illustrated with 40 Photographs.

A MANUAL OF TECHNIQUE IN RADIUM THERAPY.

Being a Supplement to A CLINICAL INDEX OF RADIUM THERAPY. (Issued in 1925.)

By A. E. HAYWARD PINCH, F.R.C.S., Medical Superintendent. (Published with the authority of the Committee.)

"Contains observations of special interest . . . gives a succinct account of the technique employed in special situations."—THE LANCET.

"Describes in detail the methods used in the surgery of access . . . contains much valuable practical advice . . . will be of real service to the profession."—BRITISH MEDICAL JOURNAL.

A copy of the above will be sent post free to any Medical Practitioner upon application to the Secretary, Thomas A. Garner, F.C.I.S., 16, Riding House-street, Portland-place, W.1.

YOUR HAIR AND YOUR HEALTH.

By OSCAR L. LEVIN, M.D.
Crown 8vo. 6s. net.

The aim of this book is to help the average person, man or woman, to an intelligent understanding of the nature of hair—its care, its diseases, and their treatment and prevention; and to emphasize the part that the health of the body plays in the health of the hair.

Wm. Heinemann (Medical Books) Ltd.,
20 Bedford St., London, W.C. 2.

NOW READY.

THE TREATMENT OF

CHRONIC DEAFNESS.

BY THE ELECTROPHONOÏDE METHOD OF ZÜND-BURGUET.

By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.

Oxford University Press, Amen House, London, E.C 4.

HYPNOTISM AND TREATMENT BY SUGGESTION. [5s. net.

4th Ed.]

By ALBERT E. DAVIS, F.R.C.S. Ed., L.R.C.P., Hon. Physician to the Liverpool Psycho-Therapeutic Clinic.

"A fascinating book."—THE DAILY NEWS.

Putnam's Sons Ltd., London.

Crown 8vo. Pp. viii. + 180. Price 7s. 6d. (postage 6d.).

SURGICAL UROLOGY.

By W. K. IRWIN, M.D., F.R.C.S.

"Clearly written .... eminently practical .... we can thoroughly recommend it."—GLASGOW MEDICAL JOURNAL.

"Concise .... clearly written .... practical in outlook."—BRITISH MEDICAL JOURNAL.

"Well written and fully up to date. Should be of great assistance to the busy practitioner."—CLINICAL JOURNAL.

Baillière, Tindall & Cox, 8, Henrietta-street, London, W.C.2.

With 79 Illustrations on 40 Plates and 1 Text-figure. Demy 8vo. 12s. 6d. net; postage 6d.

INTERNAL DERANGEMENTS OF

THE KNEE-JOINT.

THEIR PATHOLOGY AND TREATMENT BY MODERN METHODS.

By A. G. TIMBRELL FISHER, M.C., F.R.C.S. Eng.

"Throughout the book there is evidence of exhaustive investigation by the judicial mind of a trained surgeon of wide experience. We cannot speak too highly of this valuable contribution to medical literature."—Extract from *Archives of Surgery*, Chicago.

London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

With 62 Illustrations. Demy 8vo.
7s. 6d. net; postage 5d.

MANIPULATIVE SURGERY.

PRINCIPLES AND PRACTICE.

By A. G. TIMBRELL FISHER, M.C., F.R.C.S. Eng.

"The book should be of value to all who have to deal with injuries of the joints."—LANCET.

London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

JUST ISSUED.

MAYO CLINIC

COLLECTED PAPERS OF 915

AND OTHER IMPORTANT NEW BOOKS.

See Saunders' Advertisement on Page 7.

BY C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

SURGICAL "DON'TS" (AND "DO'S"). Price 3s. net.

"The keynote of the articles is common-sense."—GLAS. MED. JL.
"We have seldom seen mature surgical judgment better portrayed."—MED. WORLD.

ACUTE APPENDICITIS. Price 4s. net.

London: Harrison & Sons, Ltd., 44-47, St. Martin's-lane, W.C. 2.

DYSPEPSIA.

New and Revised Edition. 515 pages. Illustrated. 24s. net.

By W. SOLTAU FENWICK, M.D.

W. B. Saunders, Ltd., 9, Henrietta-street, W.C. 2.

By the same Author.

CANCER AND TUMOURS OF THE STOMACH. 362 pages. 10s. 6d. net.

ULCER OF THE STOMACH. 392 pages. 10s. 6d. net.

J. & A. Churchill, 7, Great Marlborough-street, W. 1.

NEURITIS AND NEURALGIA.

By

WILFRED HARRIS, M.D., F.R.C.P.,

Senior Physician to St. Mary's Hospital, and to the Hospital for Epilepsy and Paralysis, Maida Vale.

Cloth. Demy 8vo. 436 pages. Illustrated. Price 12s. 6d. net.

Oxford University Press, Amen House, London, E.C.4.

H. K. LEWIS & CO. LTD., MEDICAL PUBLISHERS AND BOOKSELLERS.

Text-Books and Works in Medical, Surgical, and General Science of all Publishers.

Orders by Post or Telephone promptly attended to. **Catalogues Post Free on Application.**

Special Stock of Medical Stationery, Loose Leaf Case Books, Card Index Systems, Case Sheets, Filing Cabinets, etc.

Special attention to packing and forwarding of books to All Parts of the World.

Department for SECOND-HAND BOOKS, 140, Gower Street.

MEDICAL AND SCIENTIFIC CIRCULATING LIBRARY.

Annual Subscription, Town or Country, from One Guinea.

LIBRARY READING ROOM (first Floor) OPEN DAILY TO SUBSCRIBERS. Hours: 9 a.m. to 6 p.m. Saturdays to 1 p.m.

136, GOWER STREET, and 24, GOWER PLACE, LONDON, W.C. 1.

Telegrams: "PUBLICAVIT, EUSROAD, LONDON." Telephone: MUSEUM 1072.

Schering

PAIN—?

↓

Veramon

TRADE MARK

The prompt and harmless analgesic and sedative.

Samples and Literature on request from

SCHERING Ltd.,

3, LLOYDS AVENUE, —— LONDON, E.C.3.

THE LANCET

No. 5379. LONDON, SATURDAY, OCTOBER 2, 1926. CCXI.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

AN ADDRESS on the Functions of the School Clinic. By Sir HUMPHRY ROLLESTON, Bart., K.C.B., M.D., F.R.C.P. 687

AN ADDRESS on the Functions of the Biliary Passages in Relation to their Pathology. By Prof. D. P. D. WILKIE, M.Ch., F.R.C.S.—(*With Coloured Plate*) 689

ORIGINAL ARTICLES.

Tryparsamide Therapy in Neuro-Syphilis. By J. D. SILVERSTON, M.B., B.S.. 693

Treatment of General Paralysis by Tryparsamide. By M. BROWN, M.B., Ch.B., and A. R. MARTIN, M.B., B.Ch. 699

Poradenitis, or Subacute Lymphogranulomatosis. By A. T. TODD, M.B., M.R.C.P.—(*Illustrated*).. 700

Results of Thoracoplasty in Phthisis. By J. GRAVESEN, M.D. 702

Action of Glyceric Aldehyde and Dihydroxyacetone on Insulin Hypoglycæmia. By J. A. HEWITT, Ph.D., D.Sc., and H. G. REEVES, M.Sc., Ph.D. 703

REVIEWS AND NOTICES OF BOOKS.

The Inflammatory and Toxic Diseases of Bone. By Prof. R. Lawford Knaggs, *M.C.*, F.R.C.S. 705

A Text-book of Public Health. By Prof. E. W. Hope, M.D., D.Sc., and C. O. Stallybrass, M.D., D.P.H. 705

Organisation and Administration of the Public Health Department. By W. A. Leonard 705

Traitement des Maladies Mentales par les Chocs. Par C. Pascal et Jean Davesne 705

Diseases of the New-born. By Prof. J. A. Foote, M.D. 706

Diagnostik und Therapie der Kinderkrankheiten. By Prof. F. Lust..... 706

Von den Akut-Infektiösen Respirationsstenosen der Kinder. By Dr. Dionys Popischill 706

Handbook on Medical Electricity and Radiology. By James R. Riddell, F.R.F.P.S. 706

The Peaks of Medical History. By Charles L. Dana, A.M., M.D..... 707

Journal of Mental Science 707

STUDENTS' GUIDE.

SESSION 1926–27.

Dental Surgery: The Examining Bodies in Dentistry 707

LEADING ARTICLES.

BILIARY PHYSIOLOGY AND PATHOLOGY 713

SCHOOL CLINICS 714

RIVERS POLLUTION 714

ANNOTATIONS.

Sir John MacAlister 716

Submaxillary Salivary Calculus 716

Tryparsamide in the Treatment of Neurosyphilis .. 716

Dull and Backward Children 717

Alimentary Hyperglycæmia 717

The Adulteration of Food 718

Congenital Occlusion of Posterior Nares 718

Baron Larrey..... 718

The Gardens of Madeira... 719

China Medical Association. 719

On Suspicion of Rabies... 719

What is a Sausage?..... 720

THE SERVICES.

Royal Naval Volunteer Reserve. — Royal Army Medical Corps. — Royal Air Force.—Indian Medical Service 720

MODERN TECHNIQUE IN TREATMENT.

CXCI.—The Treatment of Cholera. By J. WALKER TOMB, M.D., D.P.H. ... 721

SPECIAL ARTICLES.

Teaching of Psychiatry to Medical Students. By W. S. DAWSON, M.D. ... 722

Medicine and the Law: Forceps Left in the Body after Operation: "Negligence but not Gross Negligence."—Destruction of Dog Suspected of Rabies.—Dangerous Drugs Regulations: A Severe Sentence..... 724

National Health Insurance: New Arrangements for Dental Benefit: Agreed Scale of Dental Charges.—Conditions and Specification of Materials 725

Scotland: Courses for Health Visitors.—Women Citizens and Health Work 726

Ireland: The Condition of County Hospitals.—The Medical Register .. 727

Berlin: Infectious Diseases in Germany: The Cinema and the Child..... 727

Infectious Disease in England and Wales 712

CORRESPONDENCE.

Reform in Midwifery (Dr. A. P. Murtz) 728

The Righting Reflexes in Encephalitis (Dr. A. Lowndes Yates)..... 728

Stretching the Intussuscipiens (Mr. Zachary Cope)..... 729

"Microbe Hunters" (Sir Ronald Ross and others) 729

Heliotherapy in Pulmonary Tuberculosis (Dr. C. B. Heald)..... 729

Pasteurisation of Milk (Dr. C. G. S. Baronsfeather).. 730

PARLIAMENTARY INTELLIGENCE.

House of Commons: Hours of Work in Poor-law Hospitals. — Boards of Guardians and Relief... 731

OBITUARY.

William Edward Marshall, *M.C.*, M.B., D.P.H. 730

MEDICAL NEWS.

Fellowship of Med. and Post-Grad. Med. Assoc. 730

Presentation to a Medical Man..... 688

Donations and Bequests .. 688

Artificial Light at King's College Hospital 702

London School of Hygiene and Tropical Medicine.. 704

King Edward's Fund..... 720

Caledonian Medical Society 726

Queen Alexandra Sanatorium Fund 727

Health Week 730

Post-Graduate Course at St. Mary's Hospital 730

Lectures on Child Welfare and Care of Infants 730

University of London..... 731

Pharmaceutical Society of Great Britain..... 731

Medical Defence Union ... 731

People's League of Health 731

Opening of the Medical Schools: Charing Cross Hospital. — University of Durham.—Guy's Hospital. — London Hospital. — St. Mary's Hospital.—St. Thomas's Hospital .. 731

St. Mark's Hospital..... 731

National Institute for the Deaf..... 731

National Association for the Prevention of Tuberculosis 731

Queen Mary's Hospital for the East-End..... 731

Central London Throat, Nose, and Ear Hospital. 731

Neurological Conference at Oslo..... 731

NOTES, COMMENTS, AND ABSTRACTS.

The Post-Graduate Hostel: Some Recent Addresses 733

"Myoplastic Suspension". 734

Looking at Pictures..... 734

A Register for Recording the Purchase of Dangerous Drugs 734

Growths in Plants and Man 734

Medical Diary 732

Appointments 732

Vacancies 733

Births, Marriages, Deaths 733

TAYLOR & POULTON'S MEDICINE

New Edition, with Sections on Neurology by C. P. SYMONDS, M.D., and on Skin by H. W. BARBER, M.B., F.R.C.P.

THIRTEENTH EDITION. 1063 pages. 48 Plates (8 Coloured). 92 Text-figures. Price **28s.** net; post. 1s.

"No textbook of Medicine is quite so comprehensive as 'Taylor's' and none deserves a greater popularity."—BIRM. MED. REVIEW.

FOURTH EDITION. 25 Plates. **21s.** net, postage 9d.

CRAIG'S PSYCHOLOGICAL MEDICINE

NEW EDITION, with the collaboration of **T. BEATON**, O.B.E., M.D., Lecturer in Mental Diseases and Senior Assistant Physician, Bethlem Royal Hospital.

"We can thoroughly recommend it to the student and practitioner as a sound and trustworthy textbook."—BRITISH MEDICAL JOURNAL.

London: J. & A. CHURCHILL, 7, Great Marlborough Street, W. 1.

THE MUSEUM GALLERIES

Telephone: Gerrard 3932. (Studios) Telegrams: "Museumgal."

53, Short's Gardens, Drury Lane, London, W.C.2

"ST. MARY'S LE STRAND."
Etching by B. C. BARRAUD.

"RICHMOND BRIDGE."
Etching by EUGENE TILY.

THE Museum Galleries invite inspection of their studios, where may be seen original oil paintings of famous masters, water colour drawings by TATTON WINTER, R.B.A., Dr. DONALD, EDWARD KING, and others, also a large number of engravings in pure mezzotint and stipple by leading engravers after REYNOLDS, GAINSBOROUGH, ROMNEY, GREUZE, FRANS HALS, VERMEER, ETTY, etc., limited editions signed artist proofs state only.

Inspection may also be made of the colour impressions being produced by hand.

The plates here illustrated form part of a series of London views specially painted by EDWARD KING and etched by leading etchers, amongst whom are TATTON WINTER, R.B.A., EUGENE TILY, H. GOFFEY, C. H. BARRAUD, and Dr. DONALD.

Illustrated prospectuses will be sent on application.

To THE MUSEUM GALLERIES (STUDIOS), 53 Short's Gardens, Drury Lane, London, W.C.2

Gentlemen,—Please send me prospectuses of your various editions.

Name.....

Address.....

An Address
ON THE
FUNCTIONS OF THE SCHOOL CLINIC.

Given at the Opening of the New School Clinic at Birmingham on Sept. 30th, 1926,

BY SIR HUMPHRY ROLLESTON, BART., K.C.B., M.D. CAMB., F.R.C.P. LOND.,
REGIUS PROFESSOR OF PHYSIC, UNIVERSITY OF CAMBRIDGE.

THE privilege of assisting at the opening of the new and much expanded School Clinic in Sheep-street naturally arouses satisfaction at a further step in this progressive city towards the realisation of the ideal of the science and art of medicine—namely, the prevention rather than the cure of disease. Although long recognised in theory, the systematic practice on a large scale of preventive medicine is of comparatively recent growth, and much remains to be done—for example, the prophylaxis of the rheumatic conditions which are responsible for so much crippling and mortality from heart disease among children. This very important subject has naturally received attention from the Ministry of Health, with the result that special lines of action have been recommended and that many school medical officers made particular investigations into the subject in 1924 (vide Report No. 23, The Incidence of Rheumatic Diseases). The Birmingham Educational Committee have been foremost in the initiation of measures for the relief and care of rheumatic, cardiac, and choreic children.

The earlier in the life of the individual that hygienic measures and protection from infection are instituted, the better the prospect of health; preventive medicine is most successful in infancy and childhood, and in Sir Leslie Mackenzie's words "the health of the child is wealth to the nation." It has been estimated that 90 per cent. of infants are born healthy and normal, but some years ago Dr. L. D. Cruickshank concluded that at least 42·5 per cent. of children in Scotland entering school suffered from forms of disease largely preventable, and that in addition 70 per cent. of the children examined suffered from defective teeth; among 262,482 children in elementary schools in London 69·5 per cent. were in 1925 found to require medical or dental treatment, as compared with 82 per cent. in 1915. The Birmingham Clinic Centre makes ample provision for dental inspection and treatment by six full-time and five half-time dentists and one assistant school dentist; in the year ended Dec. 31st, 1925, 105,104 children were inspected; 74,736, or 71 per cent., were found to require treatment, and of these latter 32,257, or 43 per cent., were treated dentally. These figures show the need of systematic inspection and care of children in the pre-school period and justify the criticism that to start inspection only during the school period would be to begin too late; but though an enormous amount has been and is being done by infant and child welfare centres, the conditions make it difficult to carry this out in the same systematic and universal manner as school inspection; school inspection and treatment therefore constitute an efficient and most necessary means of preventing progressive disability.

HISTORY OF SCHOOL CLINICS.

In 1904 the Inter-Departmental Committee on Physical Deterioration recommended that a systematised medical inspection of school-children should be imposed on every school authority, and in the following year some degree of medical inspection was voluntarily established in 48 educational centres. In 1907 medical inspection of children attending public elementary schools was made obligatory on all local education authorities under Section 13 (1) *b* of the Education (Administrative Provisions) Act, and these authorities were empowered, with the sanction of the Board of Education, to make arrangements for attending to the health and physical condition of the children, the cost being then mainly borne by the rates. Under this power arrangements were accordingly made for the medical treatment of school-children by various agencies, such as private practitioners, hospitals, and dispensaries. By circulars and other means the Board of Education pointed out the value of school clinics, and thus the more enterprising authorities were led to establish them. The first dental clinic for school-children was opened in 1907 at Cambridge, where the local education authority made the arrangements for the dental inspection, and the cost of the clinic was undertaken by a private individual. Bradford, in 1908, submitted to the Board of Education the first scheme for a school clinic, the arrangements including provision for the treatment of minor ailments—ringworm, discharging ears, the testing of eyesight, and prescriptions for spectacles. The number of such clinics gradually increased until there were 57 in April, 1912, when the Board of Education then for the first time issued regulations sanctioning grants-in-aid of medical treatment, the total amount of the grant made by the Board of Education for the year ending March 31st, 1913, being limited to £60,000; in 1913–14 the grant was made for inspection in addition to treatment, and in 1923–24 the Board allowed a grant up to £600,000 for the purposes of inspection and treatment. The local education authorities were thus enabled progressively to increase their arrangements for treatment by clinics and in other ways, and there are now more than 1395 clinics provided by 312 out of the entire 317 local education authorities. Further, Section 80 (2) of the Education Act, 1921, laid upon the local education authorities for higher education the duty of providing medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to certain secondary schools and other institutions, and on such other occasions as the Minister of Health may direct. The local education authorities were also empowered to make such arrangements as may be sanctioned by the Minister of Health for attendance of the health and physical condition of such children and young persons.

This progressive expansion, which there is every reason to anticipate will continue, renders the school clinic system correspondingly more essential as an integral part of the health services of the nation. That it meets a widely felt need is shown by its popularity among the mothers of school-children. The total gross cost of the school medical services amounted in 1923–24 to £1,220,268, or only about one-fiftieth of the total sum spent on public elementary education—a very small premium for rendering education a useful asset and for improving the physical and financial well-being of the nation. The correlation of education and hygiene, or of the mental and physiological righteousness of the rising generation, is due in a degree not adequately recognised by the public—medical or lay—to the Chief Medical Officer both of the Ministry of Health and of the Board of Education, Sir George Newman.

WORK OF THE SCHOOL CLINIC.

(1) Inspection of school-children must be regarded as a most important element in preventive medicine; for the beginnings of disease, often due to environmental influences or to dietetic errors, can be detected and corrected by the following-up undertaken by nurses and the voluntary services of care committees and social workers. Thus the inspection of children in a clinic, where the conditions are so much more favourable for satisfactory diagnosis than in those of the school-room, renders it a health centre from which radiate the principles of preventive hygiene. Parents, who are erroneously inclined to undervalue inspection as compared with treatment, thereby come to realise their responsibilities to their children—for example, last year Birmingham parents were instructed at the clinic with regard to verminous infestation. The school-children, too, partly unconsciously, from the force of example and from the silent influence of their

surroundings in the school and the clinic, become impressed with the necessity of personal hygiene. Children who are dull, backward, or fail to come up to the standard can be investigated in the clinic in order to determine the cause, such as mental deficiency or physical defect, ocular or adenoid lesions, overgrowth, evil environment, or overstrain. The prophylactic value of inspection may be illustrated by the detection of adenoids, enlarged tonsils, and bad teeth which, besides impairing the mental and bodily efficiency, are responsible for a large proportion of the cases of rheumatic heart disease and probably for nine-tenths of the cases of ear disease in children. Reinspection of children who have undergone treatment is conveniently carried out at the school clinics. In 1925 the number of school-children medically inspected in Birmingham was 48,471, and of these 32,257 were found to have dental defects, and 1461 were operated upon for tonsils and adenoids. These figures emphasise the importance of a thoroughly up-to-date equipment for the school clinic.

(2) As a treatment centre, to supplement, not to take the place of, the existing facilities in the area, it provides for the relief of minor ailments and injuries usually requiring daily treatment by nurses under a doctor's direction. This work can be done more expeditiously in a school clinic *ad hoc* than in a hospital out-patient department or surgery crowded with adults suffering from very various diseases. In addition specialist treatment not otherwise locally available, such as of the throat, ear, nose, and eye disease, the X ray treatment of ringworm, and dental conditions, is given; remedial exercises, such as form an important factor in orthopædic treatment, are also available.

(3) The clinic is a centre for research based on observations made during routine work; there is much scope for the study of the conditions and symptoms leading up to disease, and in this way preventive medicine can be much advanced. That the ample material and opportunities for such work have been utilised is proved by what has been accomplished since 1908. Sir George Newman's annual reports on the Health of the School Child bear witness to the numerous individual inquiries which have been carried out, and further advantage will accrue from the special committees set up to investigate the prevention of enlarged tonsils and adenoids, the causation of defective vision, anthropometry, and the problems associated with mental deficiency. The 550 special schools in the country for mentally and physically defective children, which accommodate 45,000 children, offer fields for investigation, and these have not been neglected in Birmingham, which has been so active in the study of mental disease under the leadership of the late Sir Frederick Mott. The ultimate value of education for the mentally defective has been most patiently investigated by Marion Bridie and many others.

(4) The school clinic should serve as the administrative and organising centre of the School Medical Service; in addition it coördinates inspection with treatment and treatment with reinspection and following-up. Thus failure of a child to attend at the clinic is easily detected and efficient steps can then be taken to remedy the default. Records can conveniently be stored there under the supervision of clerks, and registration carried out and statistics worked up. During the year 1925 no less than 34,896 reinspections were made at the Birmingham School Clinic. The clinic also provides opportunities for teamwork by the teacher, medical man, and the parents on behalf of the children's welfare.

STAFFING OF THE SCHOOL CLINICS.

The future and continued success of the school clinic and other public medical services necessarily depends on the attitude of the medical profession, and this in its turn is affected by the training of the medical student, the capacity and resource of the medical practitioner, and the opportunity for the medical practitioner to make his contribution to the public medical services either as a part-time or whole-time officer. There is some m sapprehension in the criticism occasionally made that the Government desires to have a State medical service in which all medical practitioners shall be enrolled. There is, of course, already a State medical service. But it has never been seriously proposed that all medical men should become whole-time civil servants. Indeed, provision has been made for securing the advice and assistance of medical practitioners within their compass and opportunity. That they are not eliminated is obvious from the facts recorded by Sir George Newman, that any private practitioner may enter or not as he pleases the health insurance service, that with few exceptions all the 1770 certifying factory surgeons are private practitioners, that many assist as time and inclination determine both the school medical service and the public health service (most medical officers of health are also private practitioners), and that of the 1800 or more medical men and women engaged by local education authorities in the inspection and treatment of school-children 1023 are in private practice and 821 are whole-time; indeed, it is essential that private practitioners should take their full share in the work of the school clinics, so that they may have more opportunities for detecting the early signs of disease, to become active agents in the prevention of disease, and workers for the collective rather than only for the individual good; it is therefore arranged that in the first instance cases requiring treatment should be sent to the family doctor. For 140 education areas there are 289 women doctors or dentists, and no doubt the advantages of the service will appeal in an increasing degree to women doctors. The nurses employed number 4520, and their actual functions in the school and clinic may also usefully be combined, especially in rural districts, with those of a health visitor. This nurse health visitor looks after the care and welfare of the children of school age and correlates this work with other departments of public health.

REFERENCES.

Annual Report to City of Birmingham Education Committee of the School Medical Officer, G. A. Auden, M.D., F.R.C.P., for the year ended Dec. 31st, 1925.
Annual Report of the London County Council for 1925, iii., Public Health, p. 115.
Cruickshank, L. D., quoted by Sir Leslie Mackenzie: The Child at School, p. 46, 1926.
Mackenzie, W. L.: Introduction, p. 22, School Clinics, at Home and Abroad, by L. D. Cruickshank, 1913.
Newman, G.: Reports on the Health of the School Child, Board of Education, 1908–25. Annual Oration of the Hunterian Society, p. 39, 1926. An Outline of the Practice of Preventive Medicine, 1926.

PRESENTATION TO A MEDICAL MAN.—On the completion of 21 years' service Dr. Benjamin Holroyd Slater, of Bradford, Yorks, medical superintendent of the St. Luke's Hospital, Bradford, was on Sept. 23rd presented with a silver tea service from the hospital staff. Dr. Slater said that in the old days the fact that the hospital was a Poor-law hospital acted as an extraordinary deterrent to people entering. The municipalisation of the hospital by the corporation in 1920 had wrought a great change. It was stated that the work of the hospital had practically doubled since its municipalisation. Last year there were 7050 admissions, 485 births, and operations 2018.

DONATIONS AND BEQUESTS.—Mr. James Albert Fleming, of St. James's-court, S.W., and of Entre Rios, Argentine Republic, bequeathed the following legacies: £1000 each to the Halifax Royal Infirmary, Dr. Barnardo's Homes, and the Royal National Lifeboat Institution.—Mr. J. T. Jackson, formerly of Ilkley and Whitby and now of Jersey, has given £1000 to the Yorkshire Cancer Campaign.—Mr. Thomas Martin, of Pollokshields, Glasgow, who left £19,576, made, among others, the following charitable bequests: £2100 to the Royal Hospital for Sick Children, Glasgow, to endow two cots; £1000 to the Glasgow Royal Cancer Hospital to be used especially for research; £1000 to endow a cot in the Biggart Hospital Home, Prestwick; £500 for the Glasgow Poor Children's Fresh-Air Fortnight and Cripple Children's League; £1000 to the West Highland Cottage Hospital, Oban. The residue to be divided between East Park Homes for Infirm Children, the Maternity Hospital, and the Samaritan Hospital, Glasgow.

An Address

ON THE

FUNCTIONS OF THE BILIARY PASSAGES IN RELATION TO THEIR PATHOLOGY.

Delivered at the Institute of Pathology and Research, St. Mary's Hospital.

BY D. P. D. WILKIE, M.CH. EDIN., F.R.C.S. ENG.,
PROFESSOR OF SURGERY, UNIVERSITY OF EDINBURGH.

(WITH COLOURED PLATE.)

THE frequency of pathological changes in the extra-hepatic bile passages, the amount of disability and suffering to which they give rise, and the large share of the surgeon's time and energy which is devoted to their treatment, invest the subject of the earliest changes from normal function to disease in this region with a peculiar interest and importance. In this, as in other fields of medicine, we advance from the treatment of the grosser forms and full-blown stages of disease to the earlier, less well-defined, and subtler changes, and thus we reach a region where a clear distinction between the normal and the first shades of the pathological needs acute perception and unbiased observation. More and more necessary becomes a knowledge of the normal structure and function of the parts with which we deal, and the surgeon of to-day requires with ever-increasing reason a knowledge of minute anatomy and of physiology. I do not hesitate, therefore, to put before you some facts regarding the anatomy and physiology of the biliary tract which throw light on the morbid conditions with which we meet in the surgery of this region.

ANATOMY.

The gall-bladder averages 9 cm. in length and has a capacity of 50 c.cm. For purposes of description it is divided into several parts—fundus, body, infundibulum, neck, and cystic duct. It possesses a muscular coat which, in the fundus and body, is arranged in a fasciculated net-like manner as in the urinary bladder, but in the infundibulum and the neck in more definite outer longitudinal and inner circular coats. In the neck the circular coat is well developed so as to suggest sphincteric function (Fig. 3, on plate). In the cystic duct the muscular coat is very deficient, especially in the distal part of the duct, and it is represented merely by some irregularly disposed longitudinal and oblique bundles. On the other hand, the fibrous tissue and elastic fibres found throughout the wall of the gall-bladder are specially developed in the wall of the cystic duct. The mucous membrane of the gall-bladder, which is disposed in delicate, closely interwoven folds, has practically no glands. In place of them are found the Luschka crypts which penetrate into the muscularis. The columnar epithelial cells give but a faint reaction for mucus but contain almost invariably granules of bile-pigment. In the neck we find the first of the Heisterian folds which extend down into the proximal part of the cystic duct. These folds are formed by an inward projection of the circular muscular coat. The distal part of the cystic duct has the same structure as the hepatic and common ducts—namely, a wall built up almost entirely of connective tissue and elastic fibres with practically no smooth muscle, and a mucosa rich in specific glands.

The blood-supply of the gall-bladder is unusually free for the size of the organ, and the lymph drainage is remarkable for the number of vessels ramifying in the submucous and subperitoneal coats. The main channels drain through the cystic gland and the glands lying along the common bile-duct, and there anastomose with the lymphatics from the head of the pancreas. The gall-bladder and ducts are generously supplied with nerve-fibres, both from the vagus and sympathetic. Through the latter, by way of the hepatic and phrenic plexuses, it is connected up with the phrenic nerve, thus accounting for the shoulder tip pain experienced in some cases of biliary colic. In the wall of the cystic duct nerve-fibres and ganglion cells are especially numerous, a point of some significance in pathological conditions.

Around the lower end of the common bile-duct is an arrangement of well-developed muscular fibres. These encircle the lower 2 cm. of duct and have been proved to have a definite sphincteric function (sphincter of Oddi). This part of the duct may be subdivided into two portions—the *pars duodenalis*, as the duct passes obliquely through the duodenal wall, and the *papilla*, which projects into the lumen of the duodenum. Whilst both portions are enclosed in muscle-fibres, sphincteric in function, it has been shown that they may act independently and each has a distinct nerve-supply. The sphincter of Oddi will withstand a pressure of 150 mm. of water and, as Archibald has shown, when stimulated by the introduction of hydrochloric acid into the duodenum, will resist pressure up to even 800 mm. of water. Animals possessing no gall-bladder show anatomically a similar sphincteric arrangement, but this will not resist a pressure of more than 30 mm. of water and is probably non-functioning.

Normally the flow of bile into the duodenum is intermittent. The sphincter of Oddi remains in a state of mild tonic contraction and only relaxes to allow the egress of bile under stimulation, usually that of food entering the duodenum. The introduction of peptone or a strong solution of magnesium sulphate into the duodenum leads to a relaxation of the sphincter and a flow of bile. Thus by the Meltzer-Lyon test, we may determine the presence of infection in the biliary passages and less certainly the functional activity of the gall-bladder.

NERVE CONTROL OF THE BILIARY PASSAGES.

The outcome of many experimental researches on this subject may be stated briefly as follows.

(1) Slight stimulation of the vagus causes contraction of the gall-bladder with a relaxation of the sphincter of Oddi.

(2) Strong stimulation of the vagus causes a firmer contraction of the gall-bladder, *especially the neck*, and a spasm of the sphincter of Oddi.

(3) Stimulation of the sympathetic causes a relaxation of the gall-bladder and ducts, and a contraction of the sphincter.

(4) The effect of strong vagus stimulation can be counteracted by an intravenous dose of atropine and augmented by pilocarpine.

The foregoing facts would seem to indicate some not unimportant function for the gall-bladder, and a study of its contents under varying conditions confirms this view.

FUNCTIONS OF THE GALL-BLADDER.

That the gall-bladder is not essential to healthy life is proved by the fact that in some animals—e.g., the deer, the horse, and the rat—it is absent, and also by the large number of human beings whose gall-bladders have been excised, and who thereafter have enjoyed apparently normal health. The fact that its absence can be tolerated is, however, no argument against the importance of its function; it is merely a tribute to Nature's powers of compensation. The gall-bladder has by various observers been regarded (*a*) as a regulator of pressure in the biliary duct system, (*b*) as a secretory organ adding mucus and possibly cholesterin to the bile, and (*c*) as a concentrator and storage cistern for the bile in fasting periods. Probably it subserves all these functions in greater or less degree.

Hamarsten showed that the chemical compositions of hepatic and gall-bladder bile differed markedly, the latter showing a concentration of eight times the former. The experiments of Rous and MacMaster on the bile-pigment content demonstrated that within the gall-bladder the hepatic bile is concentrated ten times. So active is this concentrating function, that

when the gall-bladder is drained with a tube, the bile in its passage through the gall-bladder to the tube is concentrated two to three times. Hence it is that an organ with a capacity of but 50 c.cm. can store the bile from the liver amounting to 800–1400 c.cm. per diem. These observations have received a further confirmation from the clinical side by the method of cholecystography—a method which depends for its success on the remarkable concentrating power of the gall-bladder. The concentration of the bile and its contained opaque salt, sodium-tetra-iodo-phenol-phthalein, in the functioning gall-bladder causes a dense shadow of this organ to be cast whilst the ducts containing the unconcentrated bile transmit the X rays.

The resorption, mainly of water and salts, occurs principally by the lymphatics and blood-vessels, which must certainly be helped by the rhythmic contractions of the gall-bladder, recorded by numerous observers, and probably also by the respiratory movements. Such resorption explains the presence of droplets of lipoid within the cells of the mucosa (as Aschoff has pointed out, this so-called "resorption fatty change," giving a typical sulphur-yellow spotting to the wall, occurs only in the true gall-bladder and never in the cystic duct). The gall-bladder adds a certain amount of mucus to the bile and secretes mucus freely when inflamed. It should be pointed out, however, that ligature of the cystic duct does not lead to a mucocele of the normal gall-bladder which, on the contrary, contracts on a jelly-like inspissated residue of the bile contained within it at the time of ligature.

Bollman, Mann, and De Page have shown by experiment that a cholecystitis diminishes markedly the concentrating powers of the gall-bladder, this loss of function being in direct proportion to the intensity of the cholecystitis. It is of interest to note that in the rat, which has no gall-bladder, the liver bile contains eight times more pigment than the liver bile of the mouse which has a gall-bladder (MacMaster). Under normal conditions it is almost certain that the gall-bladder never empties more than a relatively small part of its content. Auster and Crohn injected carmine powder into the gall-bladders of animals and found that it took practically a week for it to be evacuated. At operations in the upper abdomen, under all conceivable conditions as regards relation to food ingestion, I have but once encountered an empty gall-bladder. This was an instance of the one condition which apparently can give rise to such a collapsed and empty gall-bladder —namely, a tumour involving both hepatic ducts at their junction to form the common duct (Fig. 4, on plate). Some observers maintain that normally the gall-bladder secretes cholesterin. Naunyn has upheld this view and the observations of Sweet, who found that after cholecystectomy the cholesterol content of the blood was increased and did not reach normal for 40 days, would appear to support it.

FUNCTIONS OF THE BILE-DUCTS.

The bile-ducts have a directly opposite function to the gall-bladder. From the glands in the mucosa a watery fluid is secreted which dilutes the bile. This fluid can be secreted under a tension much above that at which the liver can secrete bile. If the common duct be obstructed and the pressure-regulating function of the gall-bladder be wanting, either from disease or previous operation, the secretion from the glands in the duct-walls will gradually replace the bile which is absorbed and the whole biliary duct system will eventually fill with a colourless fluid, the so-called "white bile." There is no more remarkable experience in surgery than to find in the deeply jaundiced patient, whose every tissue appears impregnated with bile-pigment, the bile-ducts distended with a limpid fluid containing no trace of either bile-pigments or salts (Fig. 5, on plate). The absence of bile in ducts is not due to failure of liver cells to function, as in these cases there is usually a free discharge of bile from the duct within a few hours of drainage being established. The cystic duct appears to have the same functions as the other ducts, to which it belongs rather than to the gall-bladder.

If in an animal such as the cat, the common duct be ligated below the entrance of the cystic duct and at the same time the left hepatic duct be ligated, we have two closed systems of ducts, the one draining the right lobe of the liver and in direct communication with the gall-bladder; the other draining the left lobe of the liver but having no communication with the gall-bladder. If the animal be killed five or six days later the right duct system is seen to be distended with dark-green bile; the left duct system is filled with clear fluid—i.e., with "white bile" (Fig. 1, coloured plate). Rous and MacMaster, who first carried out this experiment, thus proved afresh the great capacity of the gall-bladder for concentrating bile and so relieving the pressure on the liver. There are limits, however, to this concentrating and pressure-relieving capacity and, contrary to the usual experience in this matter, I have found that after ligation of the common bile-duct in the cat the whole biliary system, including the previously healthy gall-bladder, may be found distended with "white bile" (Fig. 2, coloured plate).

EFFECT OF REMOVAL OF THE GALL-BLADDER.

Cholecystectomy is usually followed by a primary biliary incontinence and later by a dilatation of the bile-ducts, sometimes with dilatation of the stump of the cystic duct to form a new miniature gall-bladder. There is later a return of intermittent discharge of bile into the duodenum. In some cases, however, incontinence of bile persists and the bile-ducts do not dilate.

In view of the rich distribution of nerve-fibres and ganglion cells in the wall of the cystic duct, it is a matter of some practical interest to know whether a total or partial removal of the cystic duct influences the tonicity of the sphincter of Oddi and the presence or absence of common duct dilatation after operation.

Clinically, we find every now and then that a patient after cholecystectomy will within a short period have a return of pains not unlike those previously present, possibly also with a transient icteric tinge of the skin. The presence of an overlooked stone in the common duct is naturally suspected, but at a second operation nothing may be found but a dilated common duct. Here we must presume a persistence of spasm of the sphincter of Oddi even after the removal of the main focus of irritation.

In considering the pathology of the biliary passages I shall confine myself to some aspects of the origin of gall-stones and to the subject of biliary stasis.

METABOLIC GALL-STONES.

The Single Radiate Cholesterin Stone.

We owe to Aschoff and Bacmeister the conception of stone formation in the gall-bladder as the result of some dysfunction in cholesterin metabolism and excretion, in the absence of any infection of the bile passages. Contrary to the teaching of Naunyn that a "stone-forming catarrh of the vesical mucous membrane" is the essential antecedent to stone formation, Aschoff has built up a strong case for the single aseptic gall-stone. This stone has the following characteristics: (1) It is in composition practically pure cholesterin, although its central part may be stained with bile-pigment. (2) It is of coarsely crystalline structure. It shows no lamellation, but radiating and intertwining coarse cholesterin columns. (3) It is always single and has been designated the "cholesterin solitaire" or monolith. (Not infrequently other stones may form in the same gall-bladder, but these differ in structure.) (4) It is frequently found in a gall-bladder showing no trace of inflammation. (5) It may be present without symptoms.

Cholesterin is a normal constituent of the bile. It is held in colloid solution determined largely by the presence of the bile acids, and, as Rosin has shown, not only by the amount of bile acids, but by the

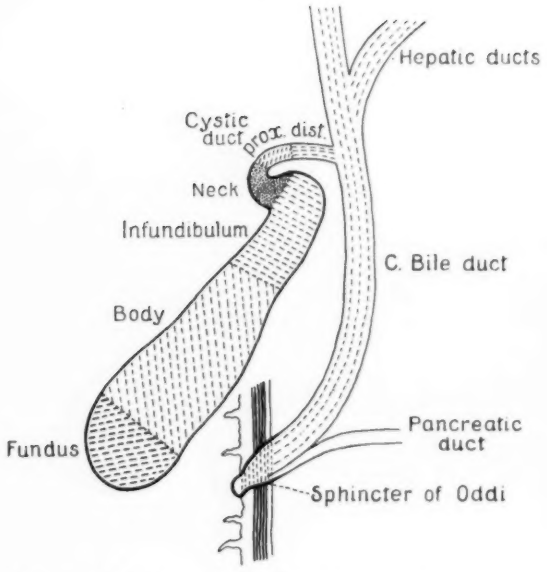
FIG. I.

FIG. I.—Condition of biliary passages one week after ligature of common bile-duct and left hepatic duct. Dark green bile on right side, "white bile" on left. (Experiment of Rous and MacMaster.)

FIG. II.

FIG. II.—Biliary passages, including gall-bladder, distended with "white bile" 15 days after ligature of common bile-duct.

FIG. III.

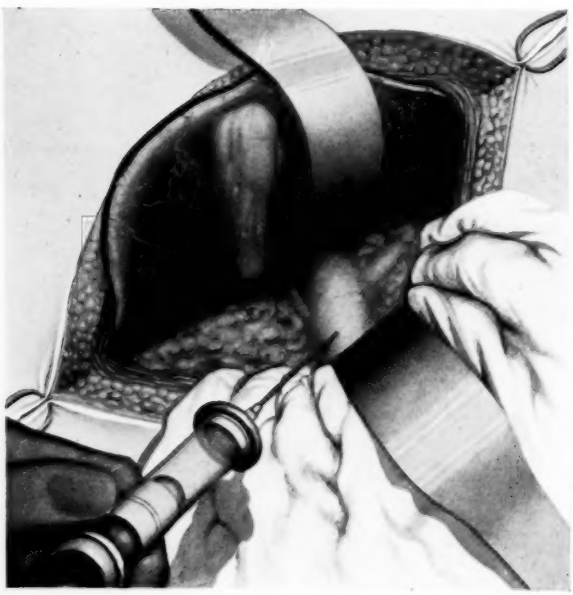


Anatomical divisions of gall-bladder and ducts. The thickness of the outline indicates the relative amount of muscle in the wall.

FIG. IV.

The empty gall-bladder. Tumour involving both hepatic ducts. The patient was intensely jaundiced.

FIG. V.



Aspiration of "white bile" from the common bile-duct. A calculus completely blocked the lower end of the common bile-duct and another the neck of the gall-bladder. Distended bile radicles are visible on the liver surface.

FIG. VI.

Gall-bladder with "combination stone" (cut across to show structure) in the neck and numerous facetted secondary septic stones.

proportions in which the latter are present. Any disturbance of metabolism or of the excretory power of the liver which leads to an increase in the cholesterin content of the bile or to a diminution in amount, or altered proportion of the various bile acids, might lead to a precipitation of cholesterin in the gall-bladder. This would be the more likely if, in addition, any factor leading to exaggerated stasis and resorption in the gall-bladder were also present. Increase of the cholesterin of the blood, cholesterinæmia, has been demonstrated in the human subject during pregnancy, in starvation and other conditions associated with a rapid loss of fat, and in arterio-sclerosis. Whilst an increase in the bile cholesterin cannot always be demonstrated in these conditions, the close relation between the cholesterin content of the bile and that of the blood was shown by Bacmeister and Havers in the case of bitches which had recently borne young but were prevented from suckling. Whilst Naunyn believes that the gall-bladder may excrete cholesterin even in the absence of any demonstrable inflammatory change in its wall, and Rovsing maintains that minute bile cylinders of pigment calcium, shed off from the intra-hepatic bile capillaries, form the nuclei of all gall-stones, the evidence in favour of Aschoff's metabolic theory of origin of the single cholesterin stone is convincing and accords with surgical experience. The unique character of this single stone, its "silent" and afebrile residence within the gall-bladder, distinguish it from other types of which the inflammatory origin is beyond dispute.

There is a second type of stone which would appear to arise as the result of metabolic disturbance—namely, the pure pigment stone, always multiple, of mulberry shape, hard, and brittle with metallic sheen and often brightly coloured, without a distinguishable nucleus and with no trace of lamellation; this type of stone is composed of pure bilirubin calcium. It is found in gall-bladders showing no trace of present or past infective mischief and in many cases of hæmolytic jaundice.

Septic Gall-stones.

The single cholesterin stone or the pigment stones described above may remain innocent and "silent" for years. Not infrequently, however, and especially in the case of the cholesterin solitaire, the stone becomes impacted in the neck of the gall-bladder and obstructs it completely, causing an afebrile attack of colic. Coincident with and dependent on this there is a spasm of the sphincter of Oddi so that bile stasis results in both bladder and ducts. Under such circumstances infection is very liable to be superimposed. The route taken by the infection is difficult to determine; in many cases, however, it would appear to be by the blood stream. The gall-bladder is now the seat of an acute obstructive cholecystitis and muco-pus gradually replaces the bile and distends the gall-bladder.

If the stone remains impacted and the infection subsides a mucocele of the gall-bladder results. More frequently, however, as the infection dies down the resorptive function of the bladder comes into play, tension decreases, the single stone disimpacts and falls back, and bile enters anew. Now is the time for the genesis of multiple stone formation. The bile entering the gall-bladder, the motility of which is crippled and impaired by recent inflammatory changes, mixes with the muco-purulent content. The latter, with its precipitated proteins, leucocytes, desquamated epithelium and micro-organisms, furnishes just the medium for a precipitation of cholesterin-bilirubin-calcium in multiple, granular, semi-crystalline masses. Many of these crystallise out on the surface of the cholesterin stone on which a new cortex is deposited, thus forming what is termed the "combination stone." Many of the little masses of cholesterin-pigment-calcium, however, act as the nuclei for new stones, later seen as the typical facetted stones of lamellated structure.

We thus see how the primary single cholesterin stone may lead to obstruction, inflammation, and secondary septic stone formation, and may itself become enclosed in a shell of the mixed material of which the large family of infective stones is composed. Later obstructive attacks may be followed by further broods of stones, more often, however, by accretion to those already formed. So constant is this sequence that at operations for acute obstructive cholecystitis the surgeon is not satisfied, after opening the gall-bladder, evacuating the pus and, it may be, a hundred faceted stones, until he delivers the ovoid combination stone, usually the largest, from the neck of the gall-bladder or the cystic duct (Fig. 6).

Primary Septic Stones.

Cholecystitis occurs frequently without any obstructing stone being present. From the walls of the inflamed gall-bladder there is poured out an exudate rich in calcium and protein. This mixes with and partly replaces the bile. During the acute stage of the inflammatory process little or no bile can enter the gall-bladder, but as the inflammation subsides and the inflammatory exudate becomes in part absorbed, bile again mixes with the now inspissated exudate which furnishes numerous centres of crystallisation. Rosettes of cholesterin-pigment-calcium form and, later, agglutinate into masses rich in protein. As fresh bile now arrives a slower process of crystallisation occurs, and on the soft, radiate, central nucleus a laminated, more compact, and harder shell is deposited. This shell contains more cholesterin and less calcium than the softer centre. Where the calculi can move about within the gall-bladder they have the typical faceted shape due to accretion at the exposed angles: where, as in small and thick-walled gall-bladders, movement is less easy, they assume a barrel shape with facets at either end where in contact with each other.

BILIARY STASIS.

All writers on biliary diseases are agreed on the importance of stasis in the biliary passages as a factor in the ætiology of both infection and calculus formation. The relative frequency of gall-stones and of cholecystitis in the female sex, especially in multiparous women, suggested the upward pressure of the pregnant uterus and the wearing of corsets as causes of biliary stasis. The not infrequent occurrence of gall-stones in males, in nulliparous females, and the present-day prevalence of this malady, when corsets are no more, indicate that other factors than pressure from without may produce stasis. Of late years much attention has been directed to local factors within the biliary passages themselves which tend towards stasis.

The Stasis Gall-bladder.

Aschoff was the first to describe, under the term "Stauungs Gallenblase," a condition of chronic stasis in the gall-bladder associated with well-defined microscopic changes in its wall occurring independently of stone formation or infection, although liable to be complicated by one or both of these conditions. Berg, in a series of very thorough investigations, differentiated two main types of stasis gall-bladder. In the first the main feature is the increased secretion of mucus by a gall-bladder with well-developed muscular wall and, in this, there develop secondary obstructive phenomena from kinking at the neck. Such a gall-bladder has always a pale mucoid content and is liable to be the seat of cholesterin stone formation. Berg terms this "muco-stasis." The second type, that of "cholestasis," is met with in biliary passages of lower muscular tone with a weaker sphincter. The gall-bladder is dilated, has unimpaired resorptive capacity, and contains dark concentrated bile. In it pigment calcium stones are liable to form.

Schmieden and Rohde have recorded a series of cases, presenting symptoms resembling biliary colic, in which at operation no calculi and no evidence of infection were apparent, but in which obstruction to the outflow was present from kinking at the neck of the gall-bladder, due, in their opinion, to congenital malformation. In all these cases removal of the

gall-bladder gave complete relief from pain. Schmieden recognises three pathological stages in the stasis gall-bladder. In Stage I. the wall shows venous congestion, lymphoid hyperplasia, and slight muscular hypertrophy; in Stage II. the muscular hypertrophy is more pronounced and connective tissue increase is found; in Stage III. atrophic changes with fibrous tissue replacement of the muscle predominate. All observers agree that in many of these cases there is a coincident enlargement and distension of the common bile-duct.

Hypertonic Type of Stasis Gall-Bladder.

Without controverting the views of Berg and Schmieden on the ætiology of the stasis gall-bladder, there is much to be said in favour of the view of Westphal that in these cases the primary and dominant factor is a spasm of the sphincter of Oddi and of the ring of musculature at the junction of neck and cystic duct, leading to secondary dilatation and hypertrophy of the gall-bladder wall—i.e., hypervagotonus determines the condition. We have here a very interesting light thrown on the stasis factor in the biliary tract so universally recognised to be the basal element for biliary lithiasis and infection.

The fact that, in a proportion of the cases in which a "stasis gall-bladder" was found at operation, a single cholesterin stone was present, whilst in others it was not, is a valid argument in favour of the obstructive element, be it kinking or spasm, being the primary factor, and stone formation the secondary result. Not only may stone result from this form of stasis, infection is liable to follow and may occur prior to or independent of any stone formation. The incidence of infection in the stasis gall-bladder will tend to increase the spastic symptoms just as dysentery may cause spastic and painful contractions of the colon. The vicious circle of spasm and infection explains many pathological findings in the gall-bladder as it does many a clinical history.

Biliary Trouble in Pregnancy.

The onset of biliary trouble in relation to pregnancy is proverbial, the association of biliary attacks with menstrual periods less well known but still undoubted. Increase of the blood cholesterin in pregnancy is an oft-repeated observation and now an accepted fact. A corresponding increase in the bile cholesterin is not regularly present during pregnancy. Hypercholesterinæmia and bile stasis from the gross mechanical pressure of the rising uterus together with a tendency to *B. coli* infection traceable to constipation are recognised reasons for the origin of biliary trouble in the later months of pregnancy. Westphal has shown, however, that in pregnant women, after injection of pilocarpine, duodenal intubation proves that there is that initial spasm of the sphincter of Oddi indicative of a hypervagotonus. To this latter condition may be attributed the biliary stasis as also the morning sickness and salivation so frequently seen during the early months of pregnancy. In 9 out of 11 pregnant women Westphal found a hypersensitiveness of the sphincter of Oddi with consequent biliary stasis during the early months of pregnancy when the upward pressure of the uterus could not be considered as an active factor.

The experiments of Storm van Leeuwen and Van der Broeke on the cat's intestine showed that the addition of cholesterin increased the action of pilocarpine, and in the human subject Kaufman and Billigheimer found that in cases of arterio-sclerosis, where increase of cholesterin in the blood was determined, there was an extreme hypersensitiveness to pilocarpine. The cholesterinæmia of pregnancy, therefore, may be potent for gall-stone formation, more from its effect in producing vagotonia and bile stasis than from its supposed influence on the cholesterin content of the bile. Recognising, as we now do, the existence of pathological conditions and clinical entities in the heart, œsophagus, stomach, and intestine, due to dysfunction of the nerve-controlling mechanism, it would be strange did some such disorders not occur in the highly specialised biliary apparatus. We have now sufficient proof to warrant us in believing that hyperkinetic neurosis of the bile passages may cause functional disorders leading not only to pain from muscular spasm, but later to definite biliary stasis with stone formation and inflammatory disease. Achalasia of the bile passages has not, so far as I know, been described. That it does occur seems more than likely, and incoördinate action, with a failure of the sphincter to relax, may account for the rare condition of cystic dilatation of the common bile-duct and bring this striking anomaly into line with such conditions as Hirchsprung's disease of the colon, cardiaspasm, congenital pyloric stenosis, and some forms of hydronephrosis.

Hypotonic Type of Stasis Gall-bladder.

It is in keeping with our knowledge of other hollow viscera that we should find that a *hypotonic* condition of the bile passages may bring about a condition of bile stasis which may lead to infection and stone formation. Berg has described two types of gall-bladder (his Types II. and III.), in which the striking features are thin lax walls, funnel-shaped cystic duct, with, later on, some degree of kinking over the cystic artery. Such gall-bladders resemble closely those seen in animals after paralysis of the vagus by atropine or stimulation of the sympathetic. Such a hypotonic condition of the biliary passages tends to stagnation in the gall-bladder, to increased resorption of water, and thus to aseptic or infective stone formation. This type is met with in asthenic ptosis and represents but a part of a general weakness and lack of tone. In these cases this stasis may be aggravated by anatomical causes tending to bile stasis. In the acquired ptosis of old age, in flabby stout people, and in the subjects of arterio-sclerosis, there is the additional element of increased cholesterin content in the blood which has been demonstrated in such subjects.

All surgeons are familiar with the type of case in which the history and symptomatology are strongly suggestive of gall-bladder trouble where operation reveals a large, flabby, dilated gall-bladder with marked pouching of the infundibulum, but with no calculi and little or no evidence of past or present inflammatory change. In such cases the surgeon usually confesses that the diagnosis has been wrong and contents himself with removing a more or less innocent-looking appendix. The symptoms, however, persist after operation. I have met with cases where two or more such negative abdominal explorations for biliary symptoms have been carried out, in which the patient has been finally relieved by the removal of the gall-bladder. We meet with so many instances of gross lesions, such as stones and frank inflammatory thickening of the gall-bladder wall, that when these are lacking we tend to overlook the subtler changes which may have an equal significance in producing pain and disability for the patient.

The Relation of Biliary Affections to Pancreatic Disease.

The frequent association of a certain degree of pancreatitis with gall-bladder disease is proverbial. As a rule, it is of the nature of a localised sclerosis in the head of the pancreas, sometimes, however, a more widespread change in the pancreas is found. In cases of acute and subacute pancreatitis evidence of disease, usually in the form of gall-stones, in the biliary passages is found. It is customary to attribute the pancreatitis to infection spreading from the gall-bladder or common duct, either by way of the latter or by a retrograde lymphangitis. Archibald suggested that infection was of secondary importance and that regurgitation of bile into the pancreatic duct due to spasm of the sphincter of Oddi was of primary importance. Several facts support the validity of his views. Firstly, in cases of florid acute cholecystitis it is rare to find an acute pancreatitis. Secondly, my experience has been that in fulminating cases of acute pancreatitis, although the gall-bladder is often dilated

and contains stones, it shows no evidence of recent inflammation and the bile within it may be sterile on culture. Thirdly, a bile-stained peritoneal exudate is frequently found in these acute cases.

It seems possible that in this condition a spasm of the distal papillary part of the sphincter of Oddi with relaxation of the portio duodenalis permits, on the one hand, of bile entering the pancreatic duct and so causing the primary pancreatic necrosis; and, on the other hand, of pancreatic secretion entering the common bile-duct and thus allowing bile-pigment to diffuse through the wall of the duct, a consequence which experiment has proved to be possible. Mann and Giordano have demonstrated the presence of sphincteric fibres round the terminal portion of the common duct, the contraction of which might throw the biliary and pancreatic channels into one. It is thus that we find acute pancreatitis supervening in elderly flabby subjects with hypotonic biliary passages, often with gall-stones, but very rarely with active inflammation in the biliary tract.

REFERENCES.

1. Archibald: Surg., Gyn., and Obstet., June, 1919, p. 529.
2. Aschoff: Lectures on Pathology, Hoeber, 1924.
3. Bacmeister and Havers: Deut. med. Woch., 1914, No. 8.
4. Bollman, Mann, and de Page: Mayo Clinic Papers, xvi., 155.
5. Berg: Nord. med. Arch., 1918, p. 50.
6. Hamarsten: Nov. Act. Reg. Soc. Scient., Upsala, 1924, p. 16.
7. Mann and Giordano: Arch. of Surg., 1923, vi., 1.
8. Naunyn: Die Entstehung d. Gallensteine, Jena, 1923.
9. Rous and Macmaster: Jour. of Exper. Med., 1921, xxxiv., 47.
10. Schmieden and Rohde: Arch. f. klin. Chir., 1921, cxviii., 14.
11. Storm van Leeuwen and Van der Broeke: Arch. f. exp. Path. u. Phar., lxxxviii., 4, 5, and 6.
12. Westphal: Zeitschr. f. klin. Med., 1923, xcvi., 22.

OBSERVATIONS ON TRYPARSAMIDE THERAPY IN NEURO-SYPHILIS.

(Preliminary Report to the Medical Research Council.)

BY J. D. SILVERSTON, M.B., B.S. DURH.,

SENIOR ASSISTANT MEDICAL OFFICER, COUNTY MENTAL HOSPITAL, WHITTINGHAM, PRESTON.

IN January, 1924, through the courtesy and generosity of the Medical Research Council, a preliminary study was undertaken to determine the value of tryparsamide in the treatment of neuro-syphilis as well as its toxicity and untoward reactions, if any.

The material on which this study is based consists of 18 cases of neuro-syphilis, one case of encephalitic psychosis, and a case of Huntington's chorea. At the outset ten cases only were available for treatment, all of whom were general paralytics, but additions to the series have been gradually made with the result that a total of 15 cases of paresis (including one case of juvenile general paralysis), three of meningo-vascular neuro-syphilis, and two non-syphilitic cases, have been under treatment and observation during the past 12 months. The amount of tryparsamide administered to each patient has varied with the time of onset of treatment, the attitude of the patient during the course, and the development of untoward symptoms. I particularly stress the second factor, as my lot has been to contend with great opposition in the treatment of most of my late cases of paresis, so that a fair trial of the drug in that class of patient could not be given.

Valuable experience has been gained in this hospital during the past two and a half years in the malarial treatment of general paralysis, but although we have met with very encouraging clinical results in a good number of cases, the serological results have been less pronounced. It was therefore decided to try the effect of tryparsamide in a series of seven general paralytics who had already received a course of malarial treatment, and to observe whether the addition of the drug brought about a more rapid cure clinically and at the same time serologically.

The cases studied may be classified in four main groups:—

CLASS A.—Tryparsamide only. Eight cases of general paralysis who had received no previous treatment: early cases, 2; late cases, 5; juvenile case, 1.

CLASS B.—Malaria and tryparsamide. Seven cases of general paralysis who had received one course of malaria treatment: early cases, 2; late cases, 5.

CLASS C.—Tryparsamide only. Three cases of meningo-vascular neuro-syphilis: early cases, 1; late cases, 2.

CLASS D.—Tryparsamide only. Two miscellaneous cases: post-encephalitic psychosis, 1 case; Huntington's chorea, 1 case.

In Classes A, B, and C mercury in the form of mercury salicylate has been also employed, and 17 cases of neuro-syphilis received this combined form of drug therapy.

Types of Cases.

The term "early case" has been applied in this series to those general paralytics with a history of not more than six months' mental disturbance prior to admission. "Late" has been reserved for more advanced cases and includes the "fat, fitty" variety as well as the infirm and bedridden. As a pronounced clinical improvement was not anticipated in the latter group the serological results became of prime importance, and formed a criterion of the therapeutic value of the drugs employed.

Technique of Treatment.

Tryparsamide, wherever possible, was administered intravenously in weekly doses of 3 g., over a period of eight or ten weeks. The drug was given in a 30 per cent. solution, obtained by dissolving 3 g. of the salt in 10 c.cm. sterile freshly-distilled water. The subcutaneous route was used in three patients (Cases 5, 6, and 7) because in them any attempt at intravenous medication was likely to be fraught with considerable danger.

Mercury in the form of mercury salicylate was administered intramuscularly into the buttock in 1 gr. doses. The mercury was given at the same time as the tryparsamide, and a total of eight or ten injections of tryparsamide and mercury comprised a single course. It was then the practice to institute a rest interval or drug-free period of six to ten weeks, after which a second similar course was repeated. A further period of rest was again ordered, and a third course, if necessary, given.

The grand total of injections, including those introduced by the subcutaneous method, numbered 242 of tryparsamide and 199 of mercuric salicylate. During the period at my disposal two cases only received three full courses (25 to 28 injections) of treatment; three patients have received two courses (18 to 20 injections); six cases one course (8 to 12 injections), and four an incomplete course of five to seven doses. In the meningo-vascular group one patient received two courses of treatment, and two patients one complete course of combined therapy.

Examination of Patient.

Besides the usual clinical, mental, and neurological examinations a full investigation of the chemistry and serology of the blood and cerebro-spinal fluid was made in each patient. Specimens were taken where possible before, during, and following the courses of treatment in order to find out whether serological improvement was taking place and if parallel improvement in the clinical and laboratory findings could be recorded.

The cerebro-spinal fluid examinations comprised the following: colloidal gold reaction of Lange; colloidal gamboge test of Riddel and Stewart; estimation of globulin content by the tests of Ross-Jones and Pandy; estimation of the cell content (Fuchs-Rosenthal); sugar concentration; and Wassermann reaction (W.R.).

The blood examinations performed were the estimation of the sugar content and the Wassermann reaction.

The estimations of the sugar content of the blood and cerebro-spinal fluid were carried out according to the method of Folin and Wu. Slight modifications of the technique were followed in the spinal fluid estimations.

The Van den Bergh, Fouchet, and Lowenhart lipase tests of the blood serum were performed where impaired function of the liver was suspected as a result of treatment with tryparsamide. The Fouchet test was carried out in the bloods of all the cases on completion of the course of

treatment, in order to detect where present the condition known as hyperbilirubinæmia or latent jaundice.

Weight charts were kept of each patient throughout the periods of treatment and observation.

Clinical Findings.

The clinical results based on observations made on the whole series of cases treated during the past year have been satisfactory, and to facilitate their readings summaries have been given in tabular form and according to their classification.

CLASS A.—*Cases of Paresis treated by Tryparsamide only.*

Classification.	Recovered.	Improved.	Unchanged.	Died.
Paresis { early (2 cases) .	2	—	—	—
Paresis { late (5 ,,) .	—	—	4	1
Paresis { juvenile (1 case) . .	—	1	—	—
Total . . . . 8 cases	2	1	4	1

The term "recovery" is used exclusively to denote cases that have reached a state of complete remission; where the patient has regained his full working power and shown complete freedom from demonstrable psychical defects; "improvement" is used where the progress of the disease has become stationary, or where the patient has developed a partial remission with a residual psychical defect. The early cases began to show signs of recovery a few weeks following the completion of the first course of treatment. Excellent progress was maintained in both cases during the second course, and in the interval that followed the patients were discharged recovered in a state of complete remission.

CASE 1.—H. F., male, aged 44; admitted Jan. 19th, 1924, discharged August 30th, 1924.

History.—In the early part of December, 1923, he developed numerous grandiose ideas, habits of extravagance, euphoria, paramnesia, and impairment of reasoning and judgment.

Central Nervous System.—The pupils were regular but unequal, and the reactions were all sluggish; pupillary oscillations were absent, and the oculo-spinal sympathetic reflexes were sluggish. Speech was rapid, but slightly though definitely impaired by tremors and hesitancy over certain test words. The tongue showed no tremor; expression of the face was relaxed and the muscles atonic. There was a general increase in the deep reflexes of all the limbs; the superficial reflexes were brisk and equal. Handwriting showed well-marked tremors and elision of syllables in the spelling of simple words.

Physical Examination.—Physique fair, the heart, lungs, and abdominal viscera apparently normal. Weight 8 st. 8 lb.

Serology.—C.S.F.: colloidal gold 5555321000; colloidal gamboge 222210; globulin one plus; cells 53·3 per c.mm.; sugar content 0·118 per cent.; W.R. positive.

Blood: W.R. positive in 1 in 15 dilution; sugar content 0·12 per cent.

Treatment with tryparsamide and mercury was commenced on Jan. 22nd, 1924, and eight weekly injections were administered to March 11th, 1924, when a rest interval was ordered. His mental state did not show the slightest improvement. Following the sixth injection the blood and spinal fluid were as follows:—C.S.F.: colloidal gold 5542100000; colloidal gamboge 221000; globulin one plus; cells 7 per c.mm.; W.R. negative. Blood: W.R. doubtful in 1 in 2 dilution. His body-weight began to improve, and with the last dose there was a gain of 5 lb. A rest interval of eight weeks was given and towards the end of that period his mental state began to show improvement. He talked less, ridiculed his former statements as delusions, and made sensible inquiries concerning his wife and family, his illness, and prospects of recovery. He had gained 12 lb. in weight at the end of the drug-free interval, and the serological readings were:—C.S.F.: colloidal gold $\frac{55}{5444321000}$; colloidal gamboge 221000; globulin one plus; cells 11·6 per c.mm.; sugar 0·08 per cent.; W.R. negative. Blood: W.R. weakly positive 1 in 4; sugar 0·08 per cent.

A second course of ten weekly injections of tryparsamide and mercury was instituted on May 13th, 1924, and during this period the improvement continued and he became a useful member of the community. He enjoyed the full privileges of parole within the grounds, and often expressed his appreciation for the keen interest that was taken in his case. After the last dose of his second course four weeks were allowed to elapse before another serological examination was made. C.S.F.: colloidal gold 0011210000; colloidal gamboge 100000; globulin faint trace; cells 3·6 per c.mm.; sugar 0·059 per cent.; W.R. negative. Blood: W.R. negative; sugar 0·12 per cent.

No further treatment was given, and patient was discharged recovered at the end of August, 1924. He has since returned to his former employment, and a letter from him, dated May, 1925, stated that he was well.

This case is of particular interest in that the clinical and serological findings ran in parallel paths towards complete recovery. The cerebro-spinal fluid readings, apart from the "sub-luetic" curve in the gold-sol, are normal. The physical signs showed no improvement except that his handwriting, speech, and muscular coördination had returned to normal. The weight at the end of treatment showed an increase of 15 lb.

The second case of early paresis recovered with the same amount of treatment. The serological recovery, however, was less pronounced.

CASE 2.—J. D., male, aged 33; admitted Dec. 31st, 1923, discharged August 30th, 1924.

History.—The patient was described by his wife as having been strange in his habits for four months and as having occasionally suffered from "twitchings" of the limbs.

On admission he seemed unaffected by his transfer to hospital, and was found to be disorientated for time and place. He was paramnesic and would steal other people's belongings and hoard them for no apparent reason.

Central Nervous System.—The pupils were unequal and irregular, the reactions to light sluggish; to accommodation and convergence sluggish, but with fair excursion; pupillary oscillations and oculo-spinal reflexes were sluggish. His articulation was drawling, tremulous, and hesitating, particularly over certain test words. There was a general increase in the tendon reflexes of the limbs, and the superficial responses were brisk and equal. Coarse tremors were manifested in the outstretched hands, and handwriting was shaky and "heavy."

Physical Examination.—Physique good, heart and lungs apparently normal.

Serology.—C.S.F.: colloidal gold 5555321000; colloidal gamboge 222220; globulin 2 plus; cells 89·3 per c.mm.; sugar 0·08 per cent.; W.R. positive. Blood: W.R. strongly positive in 1 in 45; sugar 0·086 per cent.

Treatment with tryparsamide and mercury was commenced on Jan. 22nd, 1924, and a single course of eight weekly doses was given. His habits did not improve during treatment. Following the sixth inoculation his serological readings were:—C.S.F.: colloidal gold 5554321000; colloidal gamboge 222100; globulin one plus; cells 8 per c.mm.; W.R. positive. Blood: W.R. positive in 1 in 15 dilution.

A rest interval of eight weeks was given, during which he showed gradual improvement except for two serious lapses of conduct. Prior to his second course his mental state and conduct were sufficiently improved to be regarded as normal, and a further examination of his blood and spinal fluid was made:—C.S.F.: colloidal gold 5554321000; colloidal gamboge 222100; globulin one plus; cells 4·3 per c.mm.; sugar 0·083 per cent.; W.R. positive. Blood: W.R. positive 1 in 5; sugar 0·11 per cent.

The weight during the first course increased by 13½ b., but dropped by 4½ lb. in the succeeding rest interval.

A second course of ten injections was given and concluded by July 15th, 1924, when he lost a further 5 lb. No further treatment was given as patient had made a complete mental recovery. His mind was clear, his memory and orientation good, and his insight extraordinarily good. Speech and writing defects had disappeared, but the other physical signs were unaffected. The serology at this stage read:—C.S.F.: colloidal gold $\frac{555}{4444321000}$; colloidal gamboge 221000; globulin one plus; cells 3·6 per c.mm.; sugar 0·069 per cent.; W.R. positive. Blood: W.R. weakly positive 1 in 8; sugar 0·10 per cent.

Patient was discharged recovered on August 30th, 1924, and returned to his former employment. A letter later received stated that he was quite well and working regularly.

The treatment of the late cases of general paralysis has been unsatisfactory and disappointing. In one patient only (Case 3) was it possible to administer three full courses of treatment, as in the remainder the resistance of the patient prevented a fair trial of the drug. Consequently the clinical and serological results of this group of cases are of little interest.

CASE 5.—W. A., male, aged 35. Was admitted to hospital in January, 1923, in a state of acute mental confusion. The

physical signs were typical of general paralysis and the serological findings were:—C.S.F.: colloidal gold 5555421000; colloidal gamboge 122210; globulin one plus; cells 160·3 per c.mm. W.R. positive. The blood W.R. was positive in 1 in 15 dilution. Treatment was instituted in January, 1924, and 21 g. of tryparsamide and 3 gr. of mercury salicylate were given over seven sittings. Further treatment has been impossible owing to the maniacal behaviour of the patient, but an examination of his serology indicates considerable improvement. The W.R. of the blood and spinal fluid were negative, the colloidal gold and other reactions read: colloidal gold 1122110000; colloidal gamboge 221000; globulin, trace; and cells 16 per c.mm.

A case of juvenile general paralysis (Case 4) appears in the list of patients subjected to tryparsamide and mercury treatment, but owing to the patient's aggressive attitude only a single course has been permitted.

CASE 4.—J. F. M., male, aged 17; admitted June 26th, 1924.

History.—Patient was found wandering about a seaport city and could give no information regarding himself or his parents, and inquiries have proved fruitless.

On admission patient was mentally unstable, laughing and crying without reason. He suffered from aphasia, and his replies to simple questions consisted of a repetition of such words as "Joe," "Yes," or "No." When given a banana he did not know what to do with it, but lit and smoked a cigarette. His responses to simple commands, such as "Shake hands" or "Put out your tongue," were delayed and imperfect. He probably suffered from agraphia, as he was unable to write a name to dictation.

Physical Condition.—Patient's appearance and stature suggest a much younger boy. Stigmata of congenital syphilis were found.

Central Nervous System.—The pupils were unequal and dilated; the left was irregular; reactions to light were sluggish, but those to convergence and accommodation were impossible to ascertain; oscillations of the pupil and the sympathetic reflexes were absent. There was a well-marked fibrillary tremor of the labial muscles whenever the patient attempted to speak. Gesticulations were frequent. Knee and tendo-Achilles jerks were absent on both sides. The plantar responses were flexor. There was no impairment of sphincteric control. Sensation was apparently normal; Abadie's test for deep sensibility negative. Gait was steady, although there appeared to be at times a slight hesitation in the movement of the right lower limb.

Serology.—C.S.F.: colloidal gold 5555543210; colloidal gamboge 122220; globulin one plus; cells 45 per c.mm.; sugar 0·045 per cent.; W.R. positive. Blood: W.R. strongly positive 1 in 45; sugar 0·088 per cent.

Treatment with tryparsamide and mercury was commenced on July 1st, 1924. The usual dosage was altered in this youthful case and the first injections consisted of 2·5 g. of tryparsamide and 1 gr. of mercuric salicylate. The remaining inoculations varied from 2·1 to 2·5 g. of tryparsamide and 0·5 to 1·0 gr. of mercury with two 14-day intervals between the second and third, and the fourth and fifth injections respectively. The total amount administered during the course of eight injections consisted of 19·2 g. tryparsamide and 5·5 gr. of mercuric salicylate. Apart from slight attacks of vomiting after the early injections, the course was well tolerated. No further treatment as yet has been possible, although many attempts have been made to overcome his resistance.

During the period of treatment his physical state improved, and there was a gain in weight of 6 lb. His mental state, however, remained unchanged. He remained unduly irritable, and when dissatisfied smashed windows or plates.

Ten to 12 weeks after the last injection an improvement in his mental state was noted; he became better behaved and more amenable to reason, while outbursts of passion and turbulence disappeared. His habits improved. Serious setbacks in the nature of epileptiform seizures occurred during the evenings of Oct. 29th and Dec. 23rd, 1924, but recovery from both was prompt and rapid. His body-weight now registers 8 st. 10 lb. or a total gain of 35 lb. C.S.F.: colloidal gold 1122110000; colloidal gamboge 100000; globulin trace; cells 8 per c mm.; sugar 0·062 per cent.: W.R. positive. Blood: W.R. strongly positive 1 in 45; sugar 0·08 per cent.

The clinical results obtained in the combined fever and drug treatment of cases grouped in Class B showed no marked superiority over those already discussed, and a reference to the summary given below will illustrate that practically the same number of early and late cases have been utilised for comparison.

Seven patients suffering from general paralysis were subjected to a course of treatment with malarial fever. The benign tertian strain was exclusively used and a number of rigors, varying from six to ten, was induced in each case and arrested by quinine. A period of rest of five to ten days was allowed to elapse before treatment with tryparsamide and mercury was commenced.

CLASS B.—*Cases of Paresis Treated by Malaria and Tryparsamide.*

Classification.	Recovered.	Improved.	Unchanged.	Died.
Paresis { early (2 cases) ..	2	—	—	—
Paresis { late (5 „) ..	—	1	3	1
Total .. 7 „ ..	2	1	3	1

These arsenical and mercurial preparations did not materially influence the course, clinical or serological, of the cases treated by malaria inoculation. In our experience with this form of fever treatment a fairly accurate prognosis can frequently be offered soon after the cessation of treatment. In Cases 10, 12, and 14, all of whom have been discharged to their homes, a hopeful prognosis was anticipated before treatment with tryparsamide was commenced. It cannot be said at this stage that their rates of recovery were accelerated, or that the clinical results have been rendered more stable, as complete clinical recoveries have been obtained with malaria treatment only, and patients have remained at home, and at work, for periods varying from three to 18 months. Again, a comparison between the post-malarial serology of Case 9 and the laboratory findings at the completion of the malarial and drug treatment of Case 10 will confirm the opinion already expressed above that the addition of tryparsamide to the malarial treatment of general paralysis has not been attended by any better or worse results than those obtained with the malarial treatment alone.

One death took place in a patient treated by this method, not as a result of malaria or tryparsamide, but indicating the inability of the fever or drug to arrest the progress of the disease.

CASE 11.—F. M., male, aged 47, was admitted in November, 1923, with late general paralysis. There was extreme dementia with mental confusion and characteristic neurological and speech anomalies. The spinal fluid was quite typical. He received a course of malarial treatment (ten rigors) which ended on Dec. 16th, 1923, but as no improvement resulted further treatment by tryparsamide and mercury was started. He received six injections of both drugs, but deteriorated rapidly, became feeble and bedridden, developed amblyopia and conjunctivitis, and died a typical general paralytic death.

Treatment has been discontinued in one case owing to the development of seizures half way through the course.

CASE 15.—C. D., male, aged 47, was admitted in March, 1924, because of gradual failure of memory and inability to carry on his business as a master tailor for the previous two years. On admission he was euphoric and grandiose. The neurological picture was typical of general paralysis with well-marked speech defects. Laboratory findings were:—C.S.F.: gold-sol 5554432100; colloidal gamboge 222210; globulin one plus; cells 13 per c.mm.; sugar 0·07 per cent.; W.R. positive. Blood: W.R. positive 1 in 10; sugar 0·09 per cent. An inoculation with malarial blood was performed in April, 1924. At the end of the third rigor patient became very anæmic and exhausted, and albumin in large quantities appeared in the urine. Treatment was immediately cut short with quinine, and an interval of rest ordered. A month later patient had sufficiently improved physically to undergo a further fever course, and a second inoculation was administered, which was again successful, and at the end of the ninth rigor treatment was again arrested by the oral exhibition of quinine. A lumbar puncture performed a few days after the finish of the fever course gave the following results:—C.S.F.: gold-sol 5555432100; colloidal gamboge 22210; globulin one plus; cells 10 per c.mm.; sugar 0·077 per cent.; W.R. doubtful. Blood: W.R. weakly positive 1 in 8; sugar 0·118 per cent. Tryparsamide and mercury treatment was commenced on July 8th, 1924, and repeated at weekly intervals without apparent ill-effects until five days following the fifth injection, when patient had fever and signs of meningeal

irritation. A status epilepticus of 77 seizures supervened, and his life was despaired of. (For further notes on this case vide the section on "Reactions following the use of Tryparsamide.") No further treatment was given and patient gradually improved, but an attack of mild arsenical jaundice four weeks later again embarrassed him. At the time of writing, however, he has sufficiently improved to be allowed up all day and to enjoy the privileges given to well-behaved patients. His mental state, however, shows no improvement; he is euphoric and deluded.

Clinical and serological improvements do not necessarily run parallel with each other, as two patients (Cases 9 and 13) with general paralysis, in whom the spinal fluid and blood readings became completely negative after treatment, exhibited no mental change.

A summary of the combined results obtained in the treatment of cases of Classes A and B reads:

CLASSES A AND B.

Classification.	Recovered.	Improved.	Unchanged.	Died.
Paresis { early (4 cases).	4	—	—	—
Paresis { late (10 ,,).	—	1	7	2
Paresis { juvenile (1 case).	—	1	—	—
Total .. .. 15 cases	4	2	7	2

Of a total of 15 cases of general paralysis treated during the past year by tryparsamide, and malaria and tryparsamide respectively, five, or 33·3 per cent., have recovered, and have been discharged from the institution. All four early cases have made a complete clinical recovery, while one patient with late paresis has returned home to his former employment with a slight residual memory defect. It will be seen that the late cases of the group have done badly, as two died and seven were unimproved.

Meningo-vascular Neuro-syphilis.

The results obtained in the treatment of this variety of brain syphilis are limited to the observations made on three cases over a period varying from three to eight months.

Improvement has occurred in two patients, one an early case in which treatment is being continued, and one a late case with chronic hemiplegia. In the latter, treatment was stopped at the ninth injection as symptoms suggesting the development of amblyopia occurred. In the third case, after a preliminary and apparently brilliant recovery, treatment had to be stopped, as patient became much worse and gradually deteriorated.

CASE 16.—A. C., male, aged 36, labourer; admitted March 22nd, 1923.

History.—Patient contracted syphilis in 1907 and received a course of mercury inunctions and oral potassium iodide over a period of 12 months. In 1912 he contracted malaria. He served during the war in France till the end of 1917. He was rendered unconscious by a shell explosion in August, 1916, and did not make a complete recovery. In June, 1917, following a shrapnel wound in the back, patient suffered from severe pains in the loins which prevented him from walking erect. He was boarded in 1922, when he complained of rheumatism in the loin muscles and an inability to walk any distance. For a few months prior to admission patient had several transient attacks of an apoplectiform nature, during which speech and movements of the right side of the body were lost. These seizures lasted, on an average, about an hour, and after them he became emotional and depressed. The present mental illness commenced during March, 1923, when he became absent-minded and talked about going on the stage to earn his fortune as a vocalist. On admission patient was excited, hilarious, and deluded. Orientation for time and place appeared normal, but there was a slight degree of anterograde amnesia.

Central Nervous System.—The pupils were slightly unequal and irregular; reactions to light and the responses to accommodation and convergence were all brisk and equal. The oculo-spinal reflexes were present and the pupils oscillated at rest. Speech was indistinct, tremulous, and slurred, articulation being accompanied by tremors of the labial and lingual muscles. The right knee-jerk was diminished, but the left was absent. Tendo-Achilles jerks were absent on both sides. The superficial reflexes were present and equal. Gait was normal, and the tests for the loss of deep sensibility were negative.

Serology.—C.S.F.: colloidal gold 0023332000; colloidal gamboge 222110; globulin one plus; cells 60 per c.mm.; W.R. positive. Blood: W.R. positive 1 in 3 dilution.

The combination of clinical signs suggesting general paralysis and a "luetic" curve of the gold-sol test of the cerebro-spinal fluid induced us to label the case as one of syphilitic meningo-encephalitis.

Treatment by "914" and silver salvarsan was commenced in October and continued till May 13th, 1924, when a total dosage of 0·75 g. of "914," 1·35 g. of silver salvarsan, and 8 gr. of mercuric salicylate had been given. During treatment patient said he felt much better, although the inoculations were attended or immediately followed by rigors, headaches, or attacks of vomiting. He improved mentally, became quiet, amenable to reason, and more affectionate towards his wife. On three occasions during the course he suffered from apoplectiform seizures, ushered in by intense vertigo and headaches, and followed by great mental confusion, aphasia, and hemiplegia. The attacks followed at irregular intervals and were accompanied by a rise in temperature (101° F.) which lasted several days. Examinations of the cerebro-spinal fluid during the attack showed no alteration in the cell count, although following the second seizure the "luetic" of the gold-sol test was converted into a typical "paretic" curve (5553210000). As a remittent fever of 100° F. continued with loss in weight and appetite, treatment by tryparsamide was substituted, and the first injections were duly given on May 20th, 1924. A course of eight inoculations was administered, and an immediate and pronounced improvement was observed. He so quickly recovered his strength and improved in general health and body-weight that he was able to walk about steadily and do useful work in the wards. The apoplectiform seizures ceased, while his speech improved. The inoculation reactions that frequently followed the salvarsan injections did not reappear with the tryparsamide treatment. Excellent progress was maintained during the rest interval. He took a great interest in himself and appreciated the special treatment that was being given to him. The improvement, however, was temporary, as from the commencement of the second course on Sept. 16th, 1924, patient gradually became worse, so that by the end of the fifth dose he was neither able to talk nor to move any of his limbs. An aphasic attack was less pronounced, and not accompanied by pyrexia or intense headaches. During the few days that followed patient became depressed and agitated. He gradually got worse, and one day made an attempt on his life. Washing and feeding became increasingly difficult, and as his sleep was disturbed, hypnotics were freely administered. A neuro-relapse was suspected, and in the hope of cutting short the complications two-weekly doses, each consisting of 4·5 g. of tryparsamide and 1 gr. of mercuric salicylate, were given. An epileptiform seizure occurred four days after the first of these inoculations, and as the mental and physical condition became steadily worse treatment was stopped. At the time of writing his physical condition shows a slight change for the better, but his mental state shows no signs of recovery. The present serological readings are:—C.S.F.: gold-sol 0011100000; colloidal gamboge 100000; cells 2 per c.mm; globulin trace; W.R. positive. The blood W.R. is doubtful.

CLASS D.—*Miscellaneous Cases.*

An opportunity for testing the efficacy of tryparsamide in the treatment of non-syphilitic nervous states occurred on the admission of a case of post-encephalitic confusion and a case of Huntington's chorea. A short course of five weekly doses were given to the latter, but as no improvement took place beyond an increase of 17 lb. in body-weight, treatment was discontinued. The treatment of the former is of interest because of the effect of the drug on the serological findings.

CASE 19.—B. E., male, aged 35; fisherman; admitted June 2nd, 1924.

History.—In March, 1924, patient had encephalitis lethargica with alternating periods of delirium and somnolence. Recovery was incomplete, and a complete change in character took place. He became childish and simple and paramnesia was marked. Certification became necessary when he tried to drown himself and later to strangle his wife. He had been a heavy spirit drinker for many years.

On admission he was suffering from extreme confusion with hallucinations. His bodily health and condition were good.

Central Nervous System.—The pupils were irregular and markedly unequal; reactions to light and to convergence and accommodation were sluggish, but showed a fair excursion. Pupillary oscillations were absent, and the sympathetic reflexes were present, but sluggish. Attacks of transient diplopia were frequent, but no weakness of any extrinsic muscles of the eye as revealed by ordinary examina-

tion. The deep reflexes of the lower limbs were normal, but those of the arms were slightly increased. The epigastric reflexes were not elicited, but the remainder were normal. Fine intention tremors were observed in the protruded tongue and the outstretched hands. The facial expression was atonic, but the folds remained well marked. Speech was difficult but effective, without evident tremors of the facial muscles. The general sensations, sphincters, and gait appeared normal. Choreiform movements of the limbs were absent and coördination generally was good.

Serology.—C.S.F.: colloidal gold 0023321000; colloidal gamboge 121110; globulin one plus; cells 256·3 small and large lymphocytes per c.mm.; sugar 0·057 per cent.; W.R. negative. Blood: W.R. was weakly positive in 1 in 8 dilution.

The spinal fluid W.R. was repeatedly tested and was negative. From June to August patient was apathetic and completely indifferent to his environment. Outbursts of causeless crying were frequent. On two occasions he had for several days what I assume to be a mild recurrence of his encephalitic condition as he became drowsy during the day and required to be awakened at meal hours. These clinical relapses were accompanied by mild fever, never rising above 100° F.; 5 c.cm. of cerebro-spinal fluid were withdrawn on August 11th, 1924, and immediately administered intravenously, but with no good results, so a trial with tryparsamide was suggested. The serological readings immediately prior to the commencement of treatment by tryparsamide were:—C.S.F.: colloidal gold 555432100; colloidal gamboge 222100; globulin one plus; cells 96·6 small and large lymphocytes per c.mm; sugar 0·05 per cent.; W.R. negative.

A course of ten weekly doses of 3 g. of the drug was given, and at the end of the period patient showed a remarkable improvement, especially in his general health and body-weight. (At the time of writing body-weight has shown a gain of 21 lb.) His mental state has improved slightly. He takes more interest in his environment, takes his food more readily, and has adopted cleaner personal habits. A second course of tryparsamide injections has been instituted in the hope of further improvement in his mental state. Serology prior to the commencement of the second course reads:—C.S.F.: colloidal gold 000110000; colloidal gamboge 110000; globulin trace; cells 18·3 per c.mm.; sugar 0·064 per cent.; W.R. negative. The blood W.R. is weakly positive in a 1 in 5 dilution; the sugar content 0·08 per cent.

Serological Findings.

Since malarial therapy had produced serological changes in the cases of general paralysis of Class B prior to the institution of further treatment by tryparsamide, and as Class A consisted of cases of a similar nature, but treated only by the drug, it was possible to contrast the respective serological merits of both methods of treatment, and to form some opinion of the efficacy of tryparsamide as an additional therapeutic agent in the fever-treated cases. Serological improvement of varying degrees was manifested in all the cases of general paralysis treated by tryparsamide.

The effect on the cell count was particularly striking. A marked reduction in the number of lymphocytes was observed in all the cases where a lumbar puncture was performed after the sixth injection, and at the end of treatment this improvement was manifested in 100 per cent. of the series. The final average readings were low, 50 per cent. of the fluids having a cell count ranging from 0 to 5 c.mm., 25 per cent. from 5 to 10 per c.mm., and 25 per cent. from 10 to 20 cells per c.mm. The decrease in the number of cells was general, as no increase in lymphocytes was observed. The globulin content, as estimated by the ring test of Ross-Jones and the reaction of Pandy, was reduced in amount at the end of treatment in 62·5 per cent. of the cases, but remained unchanged in 37·5 per cent. of the series.

The W.R. of the cerebro-spinal fluid has been very refractory to treatment with tryparsamide, no fewer than six out of the eight fluids showing "no change." A negative reaction, however, was obtained in the remaining two, or 25 per cent. of the cases.

The colloidal gold curve showed slight changes in several cases at the end of the first course of treatment. A mid-zone or "luetic" curve was obtained in two instances after six and eight doses respectively. Prolonged treatment with two or more courses of tryparsamide was permitted in three cases, when a variety of changes in the curve was observed. A slight change occurred in one, a "sub-luetic" curve was obtained in the second, while in the third a negative gold solution resulted. The colloidal gamboge reaction exhibited parallel changes to those noted in the gold-sol test at the different stages of treatment. The sugar content of the cerebro-spinal fluid of the whole series of general paralytics varied from 0·045 per cent. to 0·118 per cent. with an average of 0·068 per cent. before treatment. Following treatment the results varied in individual cases from 0·059 per cent. to 0·10 per cent. with an average of 0·071 per cent. Simultaneous blood-sugar estimations were made. The W.R. of the blood tended to be affected at the early stage of treatment. At the close two, or 25 per cent., became negative; three, or 37·5 per cent., were definitely reduced in intensity, and a similar number remained unchanged.

A reference to the cases grouped under Class B will demonstrate that malarial treatment in cases of general paralysis produces changes in the serological readings which more or less correspond to those obtained where tryparsamide alone has been used, except that the latter drug has perhaps a more pronounced effect on the cell count of the cerebro-spinal fluid. The employment of tryparsamide as an adjuvant to the malarial treatment of cases of paresis has not been attended by any brilliant results, although in two cases a more satisfactory serological reading was obtained after the drug was used.

In the meningo-vascular group the periods of observation have been short, but long enough to note that changes tending to the normal have occurred in the constituents of the blood and spinal fluid of all the cases. In the treatment of one patient the superiority of tryparsamide over other arsenicals has been demonstrated.

Reactions following the Administration of Tryparsamide.

The reactions following tryparsamide may be classified as (1) Early effects: (*a*) those occurring during or immediately following the injection; (*b*) those occurring within 24 hours of the injection. (2) Late effects.

(1) *Early Effects.*

(*a*) Those occurring during or immediately following the injection.

1. *Vasomotor Symptoms.*—"Anaphylactoid" or "nitritoid" crises occurred on five successive occasions during the treatment of one case (Case 14). The phenomena, however, did not make their appearance or cause any discomfort to the patient until immediately after the fifth injection, when he complained of sickness. The attack was transient. The symptoms were more marked after the next injection, when he complained of a "lump" in his throat and of faintness. This attack lasted a little longer (from 5 to 8 seconds) and then disappeared. During the seventh inoculation the arsenical salt was administered more slowly, but the moment the needle was withdrawn from the vein the patient complained of sickness and a feeling of intense oppression in the chest, while the face became flushed and his breathing laboured. Before the eighth and ninth inoculations a prophylactic of 1 c.cm. of a 1 in 1000 solution of adrenalin chloride was given intramuscularly, and the only symptom noted was a transient attack of nausea. At the tenth injection no prophylactic was given, and the operation was followed by no abnormal symptoms. Again, following two subsequent injections after an interval of eight weeks, no alarming symptoms made their appearance. Observations on the pulse readings during these crises revealed no changes in rate or volume. The attacks were mild in degree, never lasting more than a few seconds, and recovery was prompt and rapid. It might be interesting to point out that the patient had never been susceptible to any form of vasomotor disturbances or idiosyncrasies prior to treatment, nor did he present the so-called "plethoric disposition," in which these phenomena are said to occur. His heart, however, was enlarged in its transverse axis, and auscultation revealed a regurgitant mitral lesion.

Before treatment he suffered from attacks of palpitation and shortness of breath on exertion.

(*b*) Those occurring within 24 hours of the injection.

1. *Rigor, Rise of Temperature, and Headache* were the commonest sequelæ, and usually appeared within one hour, passing off by the third day. One mild rigor occurred during the night following the first inoculation of Case 10. The rise of temperature often occurred on the same evening as the first injection or on the evening following and only occasionally after the second injection. The average rise of temperature was no more than a degree Fahrenheit, although on three occasions temperatures of over 100° F. were recorded. Slight headaches, frontal or occipital, were common reactions to the first and occasionally to the second injections.

2. *Diarrhœa and Vomiting*, which were usually slight, occurred only in some of the cases which received combined arsenical and mercury treatment. In all except one the disturbances were mild, and passed off without treatment, the diarrhœa being limited to one or two semi-solid dark green offensive motions, and the vomiting to little more than retching. Streaks of bright red blood and mucus were observed in a few of the examined stools following the first injection, and were as often as not found in cases where diarrhœa was absent. In one patient it was not until the twenty-third injection that blood and mucus made their appearances. These symptoms never recurred with continued administration, and therefore no alterations in dosage or times of administration were required. In Case 13, however, the symptoms were more severe and considerably exhausted the patient. In the early morning following the first injection he complained of feeling unwell, and suffered from tenesmus, diarrhœa, and vomiting. The motions were numerous, diffluent, green, and very offensive. No mucus or blood was present. Vomiting of stomach contents tinged with bile came on later and persisted throughout the morning and early afternoon. The appetite was lost and inconstant pains in the abdomen and head accompanied the attack. On the exhibition of alkalis by mouth the attack was quickly brought under control and disappeared before nightfall.

3. *Conjunctivitis.*—Injection of the palpebral conjunctivæ occurred in three of the advanced cases following the second, fifth, and sixth doses respectively. The inflammation was subacute and accompanied by slight muco-purulent discharge. In two cases it appeared after the last dose had been given.

4. *Shedding of the Nails.*—This unusual condition was seen in one patient soon after the first inoculation. Within three to four weeks most of the nails had been affected, and by the end of the course (ten weeks) all had been shed and partially replaced.

5. *Mental Symptoms.*—Intense restlessness with insomnia and delirium occasionally followed the administration of the early doses in a few of the cases of the bedridden type. The attacks varied in duration from 12 hours to a few days.

Treatment.—For the vasomotor disturbances intramuscular injections of 1 c.cm. of 1 in 1000 adrenalin chloride were found to be beneficial.

(2) *Late Effects.*

1. *Pathologic Urinary Constituents.* — Traces of albumen were relatively uncommon. In each instance the urine secreted in the early morning of the day following the injection was collected and examined. A trace of sugar (phenyl-hydrazine test positive) was found on one occasion in Case 13 after the administration of the first dose of arsenic. Examinations made following the later injections were all negative. Bile was present in two cases affected with jaundice.

2. *Malaise.*—A general feeling of malaise occurred late in the second course of one case (Case 10), and was considered a sign of intolerance. It was accompanied by headache, loss of appetite, lassitude, and loss of weight. After a rest interval of ten weeks tryparsamide alone was tried with encouraging results. The patient's appetite and weight steadily improved, and now, at the end of the third course, he is very fit and well.

3. *Jaundice.*—Jaundice as a late symptom occurred in two cases of the series (Cases 13 and 15). Whereas the former received a complete course of ten doses the latter had five inoculations, or half the prescribed course of combined arsenic and mercury treatment. This was due to the development of seizures after the fifth injection. The first symptoms of jaundice came on in both cases during a rest interval, six and eight weeks respectively, after the administrations of the last doses. The onset, clinical signs and symptoms, blood changes, course and duration of the malady were remarkably similar in the two cases, and both patients made a rapid and uninterrupted recovery. There were no prodromal nor premonitory signs as the patients were in good health when the tinging of the conjunctivæ was noted. The clinical signs and symptoms were like those in a mild attack of catarrhal jaundice. The fæces were slate-grey and offensive. The urine contained bile-pigment.

Examinations of the blood showed :—

Blood serum, tinged highly yellow.
Fouchet test, strongly positive.
Gmelin test, strongly positive.
Van den Bergh test, delayed positive in phase 1; immediate positive in phase 2.
Sugar content, 0·09 per cent. and 0·10 per cent. (Cases 15 and 13 respectively).
Lipase estimation, 0·5 and 0·6 respectively.

The results of the lipase test suggested an arsenical affection of the liver cells with impairment of function. Ordinary diet and alkalies were prescribed and recovery was prompt and rapid. No clinical recurrences have been observed up to the time of writing, although in Case 15 the blood serum still gives a slightly positive Fouchet reaction (i.e., ? latent jaundice).

4. *Epileptiform seizures* developed half-way through the first course of Case 15, who became weak and exhausted after nine rigors. Quinine therapy was instituted until malarial parasites had disappeared from the peripheral circulation. He received his first doses of tryparsamide and mercury three days later and the injections were continued at weekly intervals for a month, during which time he improved in health and weight to the extent of 5 lb. A change, however, was noted four days after the administration of the fifth dose, when he became restless and confused. During the following 24 hours he exhibited signs of meningeal irritation with conjugate deviation of head and eyes to the right, rigidity of limbs, and grinding of teeth. The temperature steadily rose and by the evening of the following day had reached 104·2° F. At this stage twitchings of the muscles of both forearms and the right half of the face made their appearance. Patient was now unconscious and lay in bed on his right side in a state of flexion. Cerebro-spinal fluid was withdrawn under considerable pressure and no *Spirochæta pallida* were found. On the morning of August 19th, the third day of his illness, epileptiform seizures appeared and followed each other rapidly, culminating in a condition of status epilepticus. Within 16 hours patient had had 77 seizures which left him extremely exhausted. He rallied, however, and at the end of a week began to show signs of improvement. Jaundice occurred six weeks later, but the malady was tolerated without much discomfort. He has steadily improved in health and at present is up and about, apparently none the worse. Seizures have been regarded as a contra-indication to further treatment.

5. *Visual Disturbances.*—Among the 20 patients who have received more than 240 injections of tryparsamide, 4, or 20 per cent., have complained of dimness of vision. All were neuro-syphilitics and had received in addition intramuscular injections of mercury. In three the impairment was slight and cleared up when treatment was stopped. In one, an advanced bedridden patient, slight permanent visual defect remained. The symptoms made their initial appearances early in the course of treatment, although on one occasion no complaint was made until after the

second injection of the second course (the twelfth injection). The times of onset in the remaining three cases were from 12 to 48 hours following the sixth (twice) and ninth injections respectively.

6. *Local Reactions at the Seat of Inoculation.*—Twenty injections were given by the subcutaneous route; in one case on 11 successive occasions. No immediate or late reactions in the neighbourhood of the injection were observed.

Effect on Nutrition.

A striking feature of tryparsamide therapy was the remarkable effect of the drug on the state of nutrition. In the majority of cases a marked improvement in general health and increase of body-weight were recorded. The tonic effect of the drug was established and its value might be exploited in certain other diseases characterised by a general failure of nutrition.

Weekly weight records were kept and the chart below illustrates three varieties of response in body-weight that have occurred during the periods of treatment and drug-free intervals. At the end of the first course (eight to ten doses) of treatment a gain in weight was noted in 17 patients, or 85 per cent. of the series. The increase ranged from 1½ to 34 lb., or an average of a little over 7¼ lb. for the series. A loss in weight took place in three cases, or 15 per cent., ranging from 1 to 9 lb., with an average of 5½ lb. The latter were all cases of advanced general paralysis, two of which rapidly deteriorated under treatment and died.

The increase or loss in weight, however, was not always sustained during the intervals or in the succeeding courses of injections. In no fewer than 29·4 per cent., where a pronounced increase had taken place during the first course, a loss occurred during the interval that followed. A gradual increase approached higher levels in 59 per cent. of the cases. Figures relevant beyond his stage are difficult to give as only two cases, or 11·1 per cent., of the series received three full courses of drug treatment, but it may be stated that on the whole the drug exercised a pronounced tonic effect on all the cases which were not affected by any serious complications during the period in which they were under observation.

I beg to acknowledge my indebtedness to Dr. R. M. Clark, medical superintendent of the institution, for permission to place on record the results of these investigations. The Wassermann reactions of the blood and spinal fluid were carried out at the Public Health Laboratory under the direction of Prof. W. W. C. Topley.

Bibliography.

1. Lorenz, W. F., Loevenhart, A. S., Blechwen, W. J., Hodges, F. J.: The Therapeutic Use of Tryparsamide in Neuro-Syphilis, Jour. Amer. Med. Assoc., 1923, lxxx., 21.
2. Jacobs, W. A., and Heidelberger, M.: Jour. Amer. Chem. Soc., 1917, xli., 1581; Jour. Exper. Med., 1919, xxx., 411.
3. Brown, W. H., and Pearce, Louise: Jour. Exper. Med., 1919, xxx., 417, 437, 455, 483; 1921, xxxiii., 193.
4. Pearce, Louise: Ibid. (Supp.), 1921, xxxiv., 1.
5. Voegtlin, Carl, Smith, M. I., Dyer, Helen, and Thompson, J. W.: Penetration of Arsenic into the Cerebro-spinal Fluid, with Particular Reference to the Treatment of Protozoal Infections of the Central Nervous System. Public Health Report, 1923, xxxviii., 1003.
6. Moore, J. E., Robinson, H. M., Keidel, A.: Tryparsamide in the Treatment of Syphilis, Jour. Amer. Med. Assoc., 1924, lxxxii., 7.
7. Woods, A. C., and Moore, J. E.: Visual Disturbances Produced by Tryparsamide, ibid., 1924, lxxxii., 26.
8. Ebaugh, F. G., and Dickson, R. W.: Tryparsamide in Treatment of General Paralysis: Results of First Year's Experience, ibid., 1924, lxxxiii., 11.
9. Lillie, W. J.: Tryparsamide in Syphilis of Central Nervous System: Observations from Ophthalmological Standpoint, ibid., 1924, lxxxiii., 11.
10. Mehrtens, H. G., Kolos, F., and Marshall, Helen: Tryparsamide Penetration into the Central Nervous Tissue with and without Spinal Irritation: Comparison with Arsphenamin, Arch. Neurol. and Psych., 1924, xii., 1.
11. Wile, Udo J., and Lieder, L. M.: Tryparsamide in the Treatment of Neuro-Syphilis, Jour. Amer. Med. Assoc., 1924, lxxxiii., 23.
12. Schwab, S. J., and Cady, L. D.: Tryparsamide in Syphilis of the Nervous System, Arch. of Neurol. and Psych., January, 1925.
13. Foster, K., and Davis, T. R.: Results of Administration of Tryparsamide in Syphilitic Disease of the Nervous System and in Certain Other Diseases of a Non-Syphilitic Character, ibid., January, 1925.

A NOTE ON THE TREATMENT OF GENERAL PARALYSIS BY TRYPARSAMIDE.

BY M. BROWN, M.B., CH.B. GLASG.,
PATHOLOGIST, GARTLOCH MENTAL HOSPITAL;
AND
A. R. MARTIN, M.B., B.CH., B.A.O. BELF., D.P.M. LOND.,
ASSISTANT MEDICAL OFFICER TO THE HOSPITAL.

FOLLOWING reports on the undoubted efficacy of tryparsamide in cases of African sleeping sickness, this drug was advocated in the treatment of neurosyphilis, particularly general paralysis. The world-wide interest in the malarial treatment of the latter disease tended to divert attention from the arsenical compounds, but there are signs of a return to what appears to be the more rational method of treatment. In a recent address to the Liverpool Medical Association, Prof. Warrington Yorke said that the future successful treatment of general paralysis probably depends on tryparsamide or an allied drug. Difficulty in obtaining the drug has restricted investigation in this country, but extensive work is now being carried out in various hospitals. The results obtained here may prove interesting.

The Selected Cases.

In all, 17 cases of general paralysis were placed under treatment. We regarded as general paralytics those cases which, in addition to the usual physical and mental signs, gave the following readings on examination of the cerebro-spinal fluid: (1) Wassermann positive with 0·1 c.cm. fluid; (2) a paretic colloidal gold curve; (3) positive Ross Jones and Pandy tests; and (4) marked lymphocytosis. We also regarded a strongly positive serum Wassermann as additional evidence, as it is only very rarely that the blood in paresis gives a negative reaction. Although contraindicated by some authorities we included, in the 17, patients in all stages of the disease and three bed cases showing marked mental and physical deterioration.

We commenced in October, 1925, with six 1 g. doses of tryparsamide given at weekly intervals, 15 cases were treated by the intravenous route and 2 intramuscularly. During this period one patient was transferred to another hospital and one patient died. The latter had been regarded as a slowly dementing paretic of the simple facile type. He had been here for three years, his physical condition was good, and he showed only slight mental deterioration. He had no toxic symptoms whatever, but a week after his sixth injection he complained of feeling unwell. He developed a marked rise in temperature, followed by severe congestive seizures, and died within a few days. Post-mortem examination showed typical brain changes with marked congestion, but there was no excess cerebro-spinal fluid and no spirochætes could be found by dark-ground microscopy. The liver, kidneys, and spleen were somewhat congested, but otherwise normal.

During this preliminary course of treatment there were no toxic disturbances, eye complications, excitability, or other ill-effects, even among the bed cases. Accordingly we decided to increase the dose. Each patient now received eight 2 g. injections at weekly intervals half to one hour after the mid-day meal. *No other drug was administered in conjunction with the tryparsamide, as we did not wish to obscure any results that might be forthcoming.* For the same reason no alteration was made in the diet or environment of the patients during the treatment. Two deaths occurred before the course was completed, and in both instances patients were of the slowly dementing apathetic type; one was more advanced than the other and confined to bed. Death was similar to that mentioned above and followed a

period of severe congestive seizures accompanied by pyrexia. Post-morten examination was refused in one case and in the other the post-mortem findings were quite typical and there were no liver changes. The form of paresis present in these cases nearly always proves to be the most progressive, most resistive, and the least liable to undergo remission, whereas it is the expansive, active, megalomanic type which provides the greater number of stationary and protracted forms, and appears to be less resistive. Our subsequent results bear this out to a certain extent.

The number of cases now under observation was limited to 13. After conclusion of the treatment we allowed two months to elapse and then carried out further clinical laboratory investigations.

Clinical Findings.

Of the 13 cases only 2 failed to benefit. Improvement first showed itself during the months of January and February, and in all cases this improvement has held up to the present time of writing. Speech, tremors, and gait all improved, more especially the latter, and this was one of the first changes to be manifested. Argyll Robertson pupils, where present, were unaffected. Five cases, all steady and useful workers, have shown marked remission of mental and physical symptoms and are exceptionally well; three of them have been granted parole and the other two are being discharged to care of friends. Three cases previously unemployable and inclined to be dull, listless, and foolish, are now willing workers with some degree of initiative. Two bed cases recovered sufficiently to be up, and are capable of doing light ward work. One paretic of four years' standing has remained stationary mentally, but is improving physically. One case showed no change whatever. In the thirteenth case, a taboparetic with an alcoholic history, the physical condition gradually became worse. He developed bladder complications and broncho-pneumonia, and died two months after the course was finished. Throughout he was wonderfully clear mentally. Post mortem showed nothing of particular interest. Changes were most marked in the expansive type of paretic, and in the depressed, agitated type; the slowly dementing, facile, and apathetic form showed least change. There were no toxic disturbances of any kind and all except two of the patients gained weight.

Laboratory Findings.

Tests were carried out on the blood-serum and cerebro-spinal fluid of 13 cases of general paralysis before and after treatmnt by tryparsamide. In over 50 per cent. of the cases alterations took place in the colloidal gold curve and in the Wassermann reaction. The paretic curve showed a tendency to disappear with complete absence in four cases, while the Wassermann raction in both cerebro-spinal fluid and blood-serum showed a tendency to become weaker. These changes were most marked in those expensive and active paretics who had undergone such marked mental and physical improvement. In six cases the laboratory and clinical findings closely coincided.

Conclusion.

In dealing with the treatment of general paralysis there are certain factors always to be borne in mind which tend to obscure results and lead to misinterpretation. These are: (1) the possible tonic effect of arsenic, resulting in temporary improvement; (2) the beneficial effect of arsenic in certain meningeal complications which frequently accompany paresis; (3) the possibility of paretic blood-serum and cerebro-spinal fluid undergoing independent and marked variation; (4) the tendency to remissions.

Taking these facts into consideration, and in view of the limited number of cases which we had under observation, it is extremely difficult to come to any definite conclusion. As, however, only one course of treatment has been tried, and as the improvement which took place in the majority of cases has continued for about six months, we consider these clinical results, together with the coincidental laboratory findings, of sufficient import to justify further investigations along similar lines. When it is remembered that the successful treatment of ordinary syphilis by arsenic can only be brought about after a three years' course, it would appear, in view of the above results, that prolonged administration of tryparsamide in general paralysis is at least worthy of trial, particularly in the megalomanic forms.

It is a drug of low toxicity, readily soluble, and very easy to administer. That it has penetrating power is more or less confirmed by the astonishing results obtained in African sleeping sickness. The supplies used were manufactured by May and Baker, Ltd., by arrangement with the Rockefeller Institute.

Permission to carry out these investigations was granted by Dr. A. M. Dryden, the medical superintendent.

PORADENITIS, OR SUBACUTE LYMPHOGRANULOMATOSIS.

BY A. T. TODD, M.B. EDIN., M.R.C.P. LOND.,
DEMONSTRATOR OF PATHOLOGY, UNIVERSITY OF BRISTOL; HON. ASSISTANT PHYSICIAN, BRISTOL ROYAL INFIRMARY.

THE following account of this condition, together with a description of two cases, may prove of interest. The disease, though uncommon, appears to be spreading, and unless it be kept in mind difficulty may occur in distinguishing it from conditions which have a different prognosis and require other treatment. It is possible that some of these cases are being classified as tuberculous adenitis, chronic lymphadenitis, syphilis, or lymphadenoma, but although there are resemblances there should be no difficulty in the separation of these cases.

The apparent increase of the disease may be due to greater accuracy in diagnosis. About 50 cases have been recorded in the foreign literature of the last two years. It has certainly become more common since the war, and it is possible that this is due to its transport by French colonial troops. As will be seen below, my first case contracted the disease in Africa.

Several names have been given to the disease. Most commonly it is termed subacute inguinal lymphogranulomatosis; an objection to this name is supplied by the fact that in my first case the glandular distribution was cervico-brachial, and other cases with a similar regional incidence appear to have occurred.[4] Moreover, the name lymphogranulomatosis is commonly applied to lymphadenoma in America and Germany. The French term, "poradenite," has much to be said for it; the appearance of the spongy semi-necrotic gland in its last stage deserves this name. It has also been called the fourth venereal disease.

Symptoms and Course.

The virus obtains entry through the genital mucosa in the majority of cases; in Case 1, however, it appears to have entered by the buccal mucosa. The incubation period would appear to be about three weeks. A small, easily missed herpetoid lesion, or a small papule is produced at the site of inoculation. A slow, painless enlargement of the regional lymph glands is noted about three weeks later. These are hard and not fixed at first; softening and matting occur later. Gradual enlargement proceeds for weeks or months, and then softening in one or more of the glands is observed. The softening is not accompanied by any marked appearance of inflammation. The softened gland, if untreated, slowly erupts through the skin, leaving sinuses which are slow to heal and prone to secondary pyogenic infection.

Symptoms are few apart from the glandular swellings. Pain is slight or absent, unless a nerve happens to be pressed upon. The gland is occasion-

ally tender, but this is not the rule. A degree of anæmia is found—this may explain the vague malaise which is experienced. Case 1 complained of pruritus, and it will be remembered that this symptom also occurs in lymphadenoma, but in a person just returned from the tropics pruritus must not obtain too much attention. There is a polymorph leucocytosis of mild degree in the early stages.

Progress is variable but slow, the disease lasting for months. No data are yet available as to the ease of infectivity and the risks of non-venereal infection.

Pathological Features.

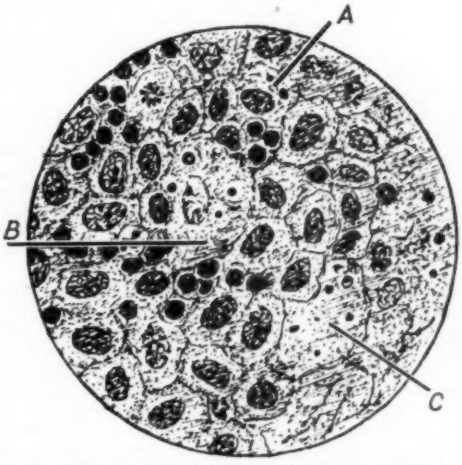
The entry of the virus causes an early proliferation of the lymph and plasma cells at the site of invasion—i.e., usually at the periphery of the gland. This change is followed by a much more massive proliferation of the endothelial cells of the reticulum. A nodule composed almost entirely of large cells very similar to the epithelioid cells of a tubercle is formed. These cells occasionally show two nuclei, and, owing to the rapidity of their proliferation, they commonly show mitotic figures. This is a point of some diagnostic importance; mitotic figures are not so frequent in other gland enlargements, neoplasm excepted. The frequency of mitoses is variable, however; Gamna[1] says that they are always very numerous, but Favre[2] takes objection to this. The probability is that both are right; in Case 1 the gland, in relatively early stage, shows many mitoses, but in the later stage, found in Case 2, mitotic figures can be found only on prolonged search.

The nodule of endothelium subsequently shows degeneration and colliquative necrosis, the centre being first affected. At the periphery proliferation progresses steadily, and the gland is slowly permeated by the newly-formed tissue which contains small foci of fluid, the appearance being well likened to that of a sponge. Other cells play a less important part. Polymorph leucocytes are fairly numerous, rather more than in a tubercle. Fibroblasts are little stimulated until the necrotic fluid is discharged, then they play a part in repair. Granular cells are moderately numerous, but are mainly basophil; eosinophil cells are scanty, a point of importance in the differential diagnosis from lymphadenoma. The vessels are little affected, there is a patchy congestion, and here and there œdema and some lymph stasis can be seen.

This description would have sufficed until about a year ago; then at about the same time and independently Gamna and Favre described a new feature, the presence of intracellular inclusions, which the former observer considered to be a protozoon and the causal virus; this view now meets with general acceptance. Some of the large endothelial cells can be seen to contain small globoid bodies varying between one and three micra in size. They readily take any nuclear stain, and, except for their larger size, they recall the appearance of the "encephalocytozoon" of encephalitis lethargica; like the latter, a clear halo is often to be seen surrounding them, but they stain much more readily. I find that they show a special affinity for well-matured methylene-blue; this stains them a deep blue-black colour, allowing them to be picked out from their surroundings readily. The chromophilic material is not evenly dispersed through the globoid, at any rate in the larger ones; in these it is sometimes collected into a denser peripheral layer and then recalls the appearance of an erythrocyte, staining and size excepted, or there is an accumulation in a horseshoe-shaped mass at one pole. In my two cases there was no hint of any acidophil substance in the bodies, and Favre does not find any; Gamna has described the presence of faintly staining acidophil areas, but there is nothing suggestive of the strongly acidophil structures of the malaria and Leishman parasites (see figure).

The nucleus of the containing cell stains well at first; it loses its staining properties later and cannot be made out. The parasites are then found first in the cell membrane and later are found extracellularly in between the healthy-looking cells and also amongst the necrotic débris in the centre of the nodule. The distribution of the parasite appears to be variable, however, for Gamna finds them to be scanty in the older parts of the lesion, while Favre notes that they are readily to be found in this position. In both my cases parasites are numerous, in the spreading margin and necrotic areas alike. The same parasite has been found in the primary lesion,[3] which resembles the glandular condition in type and termination of cell change.

The disease can be transmitted to guinea-pigs by inoculation of the necrotic fluid, but this fluid after



Semi-schematic drawing of lesion. Necrosis occurring to the right. At *A* is a cell with well-preserved nucleus containing parasites; at *B* a cell with degenerating nucleus containing parasites; at *C* the nucleus has disappeared.

filtration through the finer Berkefeld candles is no longer infective. Attempts to cultivate the organism have so far failed with all media.[1]

Clinical Records.

CASE 1.—Male, aged 32, has resided in Nigeria for about two years; health good except for mild malaria and what was diagnosed "low fever." He came to Mr. H. Chitty's out-patient department, and Mr. Chitty kindly transferred him to me for investigation. For about a year he has noticed swellings about the neck and arms, which gave little trouble unless knocked. He does not feel well and he easily tires. On careful questioning he admits that his skin has been troublesome lately—various parts itch without there being anything to be seen. Just before he was sent back to England the large epitrochlear gland of the right arm became soft and was removed; a diagnosis of "suppuration" was made.

Examination was disappointing except for the glandular swellings; these were left submaxillary, axillary less marked, cervical, especially a gland of the low cervical group on the right side; the latter was about the size of a small walnut. The glands were tender on firm pressure and were readily movable. The inguinal glands were little enlarged, perhaps more than the average for an adult, but to nothing like the size of the glands noted above. The spleen was just palpable. There was no scar to be found on the genital mucosa. The possibility of any venereal disease was denied.

Blood showed 80 per cent. hæmoglobin. Films showed well-formed erythrocytes with little more than the normal anisocytosis and no polychromasia. There were no malarial parasites to be seen. Polymorphs, 56·0; small lymphos., 24·6; large lymphos., 13·6; transitional, 3·0; eosinophils, 2·6; mast, 0·2 per cent. No abnormal types were found. The Wassermann reaction was positive; the tubercle complement fixation was strongly positive. The large cervical gland was punctured and films were stained by Giemsa and Leishman's methods. These showed a few eosinophil cells, few lymphoid cells for a lymph gland, and there were many large cells with palely staining nuclei. Amongst the latter some much larger cells were observed to contain small basophil bodies; I thought that these were Leishman bodies at first, but altered my opinion on finding that there was no acidophil structure present.

The patient was put on liq. arsenici hydrochlor. while the condition was being investigated, as a provisional

diagnosis of lymphadenoma had been made. He responded rapidly to this, and shortly reported that he felt stronger and that the glands were shrinking. As I was not satisfied with the diagnosis I had the largest gland excised; on section I found the appearances noted above. He continues to do well, and when last seen the largest gland was about the size of a haricot bean.

CASE 2.—For the clinical details of this case I have to thank Mr. Duncan Wood under whose care he was admitted to Cossham Hospital. The patient was a young adult male who has never been abroad. Contact was alleged in April, 1925, and the swelling was first noted in November. There was no penile scar. A single inguinal gland was enlarged to the size of a damson. No other swellings or symptoms were noted. Mr. Wood removed the gland for diagnosis and sent it to the department of pathology. He observed that it shelled out easily and that the wound healed by first intention. The gland presented the same appearances as in the former case except that necrosis was much more advanced. The parasites were numerous in all the parts, showing endothelial proliferation and necrosis.

The finding of a positive, more frequently a partially positive, Wassermann reaction appears to be not infrequent.[3] A cuti-reaction, using the material from the necrotic focus, has been practised by Frei [5]; eight cases of the disease gave a positive reaction; controls were negative. There was no complement fixation with this material as antigen.

Diagnosis and Treatment.

Diagnosis should be easy once the condition is remembered. A suspected gland should be punctured and a little of the pulp withdrawn and thin films made. These may be dried in air, or better fixed with methyl alcohol. Then stain one film with Leishman's stain and another with methylene-blue, counter-staining with eosin. Search for large cells containing blue bodies, firstly in the methylene-blue preparation. If these are found then compare with the Leishman film to determine whether there are any strongly stained red particles present. In the absence of the latter and of acid-fast bacilli the condition may be safely diagnosed poradenitis. It should be noted that in any necrotic gland small basophil bodies, fragments of pyknotic nuclei, are frequently to be found. If the features noted are not kept in mind a diagnosis of poradenitis will be made more often than is justified.

There are several treatments already. Excision was first practised, and in the early stages is radical. Radiotherapy has been given up, as it results in a massive fibrosis. The specific treatment is now emetine, with or without iodine. The former is given in daily dose of 1 gr. by the mouth, and is continued until 15 gr. have been given; a second or third course may be needed. Iodine has been given intravenously and by the mouth. Perorally it is best given as a 10 per cent. solution of iodine in 70 per cent. alcohol. Commencing with 10 drops in a little milk twice daily, the dose is slowly increased to 80 drops. I have given 200 drops of this strength of iodine, though not in this disease.[4] As is noted above, my case is doing well on arsenic. He takes ℥ iv. liq. arsenici hydrochlor., with ℥ xxv. acid hydrochlor. dil. p.c. t.d.s.

I have to thank Prof. I. Walker Hall for some advice and encouragement. The expenses of the research have been met by a grant from the Colston Research Fund.

References.—1. Gamna, C.: Presse Médicale, 1924, No. 37, p. 404. 2. Favre, M.: Ibid., 1924, No. 62, p. 651. 3. Nathan, M.: Ibid., 1923, No. 56, p. 617 (note a bibliography up to this date is given). 4. Destefano and Vaccarezza review of La Semana Medica, Buenos Aires, vol. xxx., No. 6, 1923 (vide Presse Méd., 1923, No. 72, p. 102). 5. Frei, W.: Klin. Wochenschrift, 1925, No. 45, p. 2148.

ARTIFICIAL LIGHT AT KING'S COLLEGE HOSPITAL.—Last week the Stock Exchange Dramatic and Operatic Society presented a new helio-therapeutic department to this hospital. The apparatus consists of three carbon arc lamps around which eight or ten patients can sit, and a mercury-vapour lamp for ward and localised treatment. The department was unlocked with a gold key by Mr. Archibald Campbell, the chairman of the Stock Exchange.

RESULTS OF THORACOPLASTY IN PHTHISIS.

BY J. GRAVESEN, M.D.,
MEDICAL SUPERINTENDENT, VEJLEFJORD SANATORIUM, DENMARK.

THE question raised by a study of the following statistics is whether various other possible operations should be adopted when artificial pneumothorax, partial or complete, turns out to be a failure on account of pleural adhesions. The claim for their adoption is based on the considerable number of patients upon whom, at this sanatorium, such operations have been performed during the last ten years. They have been followed up by regular inquiries after leaving the sanatorium, and in this way it has been possible to obtain a fair idea both of temporary and permanent results.

TABLE I.—*Thoracoplasty performed in 157 Cases of Pulmonary Tuberculosis. Results of 151 Cases Discharged from Sanatorium.*

Not yet discharged: 6 patients. Death caused by the operation in 12 cases = operation mortality of 7·6 per cent.

36 discharged as much improved 67 „ „ improved	}	103 (68·2 %)
21 „ „ stationary or worse 27 „ „ dead	}	48 (31·8 %)

Of the 151 discharged patients 150 had T.B. in sputum before operation.

T.B. disappeared on discharge in 52 cases (34·7 %)
„ still found „ „ 98 „ (65·3 %)

Up to March, 1926, thoracoplasty has been performed in this sanatorium in 157 cases. The temporary results are collected in Table I., from which it is seen that the operative mortality had been 7·6 per cent. The positive results are divided into two groups. Of these groups, "considerably improved" only contains those in which all symptoms have subsided, while "improved" contains those in which an undoubted improvement had taken place, so that the patients could walk about without fever, some of them also without T.B. in sputum, though with some symptoms of disease. All other cases are classified as "negative"; also those with a doubtful result, and those with a shorter time of improvement who failed again before discharge. According to this classification, the results on discharge of the 151 cases which had been discharged at the time the statistics were drawn up show a positive result in 68·2 per cent. a negative result in 31·8 per cent. T.B. in sputum had disappeared on discharge in 34·7 per cent.

A comparison of these results with other publications is shown on Table II., in which every endeavour has been made to ensure as uniform a classification

TABLE II.—*Comparative Thoracoplasty Results.*

—	No. of cases.	Operation mortality.	Excluded.	Positive results.	Negative results.
Alexander's compilation* of *all* cases published by authors from different countries.	1159	153 (13·2 %)	47 still under treatment, 28 unknown. } 75	664 (61·3 %)	420 (38·7 %)
Brunner's last statistics† from the chirurgical clinique in Munich for the years 1918–22.	117	13 (11·0 %)	—	75 (64·0 %)	32 (36 %)
Vejlefjord Sanatorium	157	12 (7·6 %)	6 still under treatment.	103 (68·2 %)	48 (31·8 %)

* Taken from the Surgery of Pulmonary Tuberculosis, by John Alexander, M.A., M.D., Lea and Febiger, Philadelphia and New York, 1925.
† Taken from Die Chirurgische Behandlung der Lungentuberkulose, by Dr. Alfred Brunner, Johann Ambrosius Barth's Verlag, Leipzig, 1924.

as possible. The reason why our results are better than others is probably connected with the fact that all our patients have been operated on within the sanatorium (without any break in the sanatorium régime), combined with the fact that there is an experienced and technically well-equipped staff at hand to deal with these patients.

It may be of still greater interest to know how far the results can be expected to last. In the literature scarcely any statistics of the permanent results of thoracoplasty are to be found. The next table (III.)

TABLE III.—*Lasting Results of Thoracoplasty*

In 131 cases, discharged from sanatorium before March 1st, 1925. In March, 1926 (1–10 years after operation), the state of health of these 131 cases was:—

Fit for ordinary work	34	53 (40·5 %)
Fit for easier work	19	
Unfit for work		15 (11·5 %)
Death from tuberculosis (including operation deaths)		59 (45·0 %)
Death from other diseases		4 (3·0 %)

may therefore claim some special attention, as it shows the state of health of 131 patients whose discharge from the sanatorium took place more than one year before the statistics were made—i.e., one to ten years after operation. In these statistics are included all cases of death, inclusive of those dying as a direct result of the operation. It is seen that about *40 per cent. of the patients are able to work.* This figure can fairly be compared with the average permanent results of ordinary artificial pneumothorax. Out of the ten first cases (operated upon seven to ten years ago) seven patients declared themselves able to work. This example shows that the permanent results are distributed over the whole number of cases.

The fact that our patients at Vejlefjord Sanatorium are drawn chiefly from the well-to-do class must be borne in mind, but a study of many statistics shows that the results of artificial pneumothorax are much the same in both public and private sanatoriums, and it may therefore be anticipated that the same will hold good with regard to thoracoplasty. Moreover, the capacity of some of our patients has been very appreciable, many of them being fit for ordinary work such as clerks, farmers, pastors, and business men. Some of the patients have been through pregnancy and childbirth, and several of them are able to attend to ordinary house work.

From Table III. it is seen that the permanent results of thoracoplasty compare favourably with the results of artificial pneumothorax (A.P.). Naturally the percentage of capacity for work is higher in A.P. cases, if only the cases with complete A.P. without adhesions are considered. In these a permanently good result has been obtained by us in about 70 per cent. For several reasons a similar figure could not be expected among patients who show the indications for thoracoplasty. The simple fact that the disease in the former group has in no instance touched the pleura, whilst in the second group the pleura has in all cases been obliterated by adhesions, means a difference in the extent of the disease which must be taken into account. Moreover, the operative mortality in thoracoplasty and the different influences exerted by the operation upon the general condition of the patients must naturally detract from the good results compared with those of simple A.P. On the other hand, A.P. cases are so often handicapped by the presence of adhesions as to reduce the percentage of permanent cures by this method to an extent which allows thoracoplasty, in spite of its different dangers, to show a percentage of lasting cures equal to those of A.P.—namely, about 40 per cent.

In the tables no account has been taken of the extent of the rib-resections. The great majority of the patients in question have been treated with a *complete* thoracoplasty, leaving the one lung in a fully collapsed condition. In a minority the operation has been more or less partial. But in *all* cases the guiding principle has been to transform the chest into the shape which was thought to provide the best possible condition for an effective healing of the lesions.

In two of our cases the thoracoplasty was combined with the operation of apicolysis and transplantation of abdominal fat. In both of them this supplementary operation was indicated by the presence of a large apical cavity, and in both cases the additional apicolysis caused a final disappearance of bacilli. In seven of the cases the thoracoplasty was combined with phrenico-exeresis. This operation has, however, in certain quarters been recommended far more highly than, in our opinion, it deserves. As a matter of fact, we have not yet observed any case in which the phrenico-exeresis has afforded any additional benefit. Moreover, our results with thoracoplasty alone do not seem to us to need the very doubtful assistance supplied by phrenico-exeresis. Our experiments with this operation are being continued, and it remains to be seen if our opinion on this question will be changed.

In conclusion, we feel justified in considering the results of thoracoplasty well worth while the inconveniences involved therein, for undoubtedly it means a great improvement in the prospects of a group of patients whose outlook without the surgical treatment is extremely bad.

A NOTE ON THE ACTION OF

GLYCERIC ALDEHYDE AND DIHYDROXYACETONE ON INSULIN HYPOGLYCÆMIA.

BY J. A. HEWITT, PH.D., D.SC.,
AND
H. G. REEVES, M.SC., PH.D.
(*From the Department of Physiology, King's College, London.*)

ONE of the most important reactions in animal metabolism is the breakdown of glucose with the production of heat and ultimate formation of carbon dioxide and water, but despite the fundamental nature of the reaction there is little precise knowledge of the mechanisms involved or even the intermediate substances produced. There are, however, grounds for assuming that lactic acid is one stage in the biological oxidation of glucose, and, admitting this, the more elusive problem is presented as to what is the precursor of the lactic acid. Though it is not proposed to enter into a chemical discussion here, it may be stated with some assurance that at least two substances intervene between glucose and lactic acid, and that one of these contains no asymmetric carbon atom—that is, is optically inactive.

The effect of administration to animals rendered hypoglycæmic by insulin of glucose, or its isomerides, fructose and mannose, is well known, but so far as the authors are aware no systematic investigation has been carried out on any possible analogous action of degradation products of these simple hexoses, especially those containing three carbon atoms and having close relationship to lactic acid.

For these and for other reasons a certain importance has been attached to the two initial oxidation products of glycerol—viz., the aldehyde, glyceric aldehyde and the ketone, dihydroxyacetone; and it is with one aspect of the relation of these to carbohydrate metabolism that the present communication is concerned—namely, their action on hypoglycæmia induced by insulin in normal animals.

The substances employed were pure synthetic crystalline preparations and uncontaminated with each other. Thus it was possible to investigate the effects of each independently—a result not obtainable when, as has been frequently done, the crude material formed by direct oxidation of glycerol, the so-called "glycerose," was used.

In the experiments here described, mice and rabbits were used and the routine technique was to render the animals hypoglycæmic by insulin, to await onset

of typical symptoms, and then to determine by subcutaneous injection the efficiency or otherwise of the aldehyde or the ketone. In each case suitable control experiments were conducted and when necessary to secure the survival of the animal, coma or convulsions were relieved by glucose.

It was found that no beneficial action of any note was displayed on mice or on rabbits when even massive doses of glyceric aldehyde were administered. In two mice an apparent partial transitory recovery was observed, but throughout the series of experiments in each case where glyceric aldehyde was tested recourse had to be made to glucose as antidote to the hypoglycæmia. Hence it was concluded that glyceric aldehyde is not capable of replacing glucose in relieving insulin convulsions.

With dihydroxyacetone a completely opposite action obtained in similar animals, and in view of the interest of this result two experiments are recorded, in one of which mice were used, in the other a rabbit.

Experiment A with Mice.

Six animals were injected at the same time, each with 5 minims of standard insulin (B.D.H., Ltd.) diluted to 1 in 25 with 0·05 per cent. hydrochloric acid. The animals whose average weight was 35·5 g. were kept warm.[1]

No. 1. After 59 minutes, convulsions; 6 minims aqueous dihydroxyacetone injected; gradual and complete recovery.

No. 2. After 60 minutes, convulsions; 6 minims aqueous glyceric aldehyde injected. At 78 minutes transitory improvement followed by relapse. Relieved permanently by glucose.

No. 3. After 62 minutes, convulsions; 6 minims aqueous glucose injected which caused improvement for 16 minutes when relapse occurred. 10 minims aqueous dihydroxyacetone injected. In 15 minutes recovery complete and permanent.

No. 4. After 67 minutes, apparently normal when 6 minims aqueous glyceric aldehyde was injected; 5 minutes later the animal was in convulsions and 10 minims aqueous glucose was given. After a lapse of 10 minutes the animal again normal and remained so.

No. 5. After 75 minutes, in exceedingly violent convulsions. 6 minims aqueous dihydroxyacetone was injected and within 1 minute the animal was better and remained so.

No. 6. Retained as control.

Experiment B with Rabbit.

On April 12th a rabbit weighing 2500 g. was starved for 20 hours and on the following day was given 2 units insulin (B.W. and Co.). As no symptoms developed, the animal was fed in the evening and was again starved the next day. On the 15th, at 11 A.M., 4 units of insulin were given and convulsions began at 1.45 P.M.; these continued intermittently in the usual manner and after 50 minutes the animal, which was still having violent convulsions and was very collapsed, was given 1 g. of glucose subcutaneously. It recovered normally and was fed.

On the 19th the same animal, after having been fasted on the 18th, was given 4 units insulin at 11 A.M.; convulsions began at 12.45 P.M. and became very marked at 1.5 P.M. After violent convulsions it seemed to be moribund and was given 1 g. dihydroxyacetone subcutaneously. Two minutes later it had a very violent bout of convulsions and appeared to be dying with head retracted, limbs outstretched, and respiration very rapid and shallow. But hereafter it began to recover in a manner identical with that seen when glucose was injected; it lay quite relaxed, showed no excessive nervousness, and its breathing improved. In 15 minutes it was sitting up. However, at 3.45 P.M. the animal again collapsed and had slight convulsions. At 3.55 P.M. the blood-sugar was 0·049 per cent.; 1 g. dihydroxyacetone was injected at 3.56 P.M., when the animal promptly recovered. Analyses of the blood-sugar at 4.15 P.M. and at 4.45 P.M. gave respectively 0·086 per cent. and 0·096 per cent. At 4.45 P.M. food was given and the rabbit ate greedily.

Summary.

Before discussing the results obtained in vivo it is necessary to draw attention to the close chemical relationship existing in vitro between the two substances employed. The present authors[2] have succeeded in obtaining proof that glyceric aldehyde when dissolved in water is stable for an indefinite period, but that when rendered only faintly alkaline profound chemical rearrangement takes place with the production of two substances, one a highly reactive, extremely unstable enol which in turn passes to a limited extent into dihydroxyacetone. Conversely this last substance is equally stable in neutral solution but sensitive to alkali, giving rise to the same reactive enol. It is probable that a trace of aldehyde is also formed. The relationship in vitro under conditions of mild alkalinity is, therefore—

Glyceric aldehyde $\rightleftharpoons$ enol $\rightleftharpoons$ dihydroxyacetone.

It will be seen how close a similarity there is to the well-known interconversion of glucose and fructose in dilute alkali. Furthermore, Schmitz[3] has succeeded in preparing from glyceric aldehyde under these conditions α-acrose which is inactive fructose. Hence it is clear that alkali alone will effect the change:

Glyceric aldehyde $\longrightarrow$ α-acrose $\longrightarrow$ glucose.

On these theoretical grounds, therefore, one would have postulated that glyceric aldehyde and dihydroxyacetone would have been interchangeable in the body. However, when one examines the relations in vivo it it clear that the aldehyde is incapable of relieving the condition of hypoglycæmia while the ketone is as efficient as is glucose itself.

It is not possible to offer a satisfactory explanation of the results. It seems, nevertheless, not unreasonable to suggest that whatever it be which relieves convulsions after injection of glucose—i.e., whether it be this sugar itself or some derivative, then dihydroxyacetone is capable, in the body, of being converted into this substance and glyceric aldehyde is not, and that in the body the conversion of glyceric aldehyde to dihydroxyacetone does not occur in amount or at a rate which could be detected under the conditions of the experiment. It is, however, an undoubted fact that in the diabetic animal glyceric aldehyde can be converted into glucose, and in the normal animal can be completely oxidised to carbon dioxide and water.[4]

Reconciliation of these facts is not easy if one assumes glyceric aldehyde to be an intermediate product in normal carbohydrate metabolism. The present experiments tend rather to draw attention to the importance of dihydroxyacetone in this connexion.

Conclusions.

(1) In mice and in rabbits rendered hypoglycæmic by insulin, such hypoglycæmia is relieved by dihydroxyacetone and is not relieved by glyceric aldehyde. (2) The hypoglycæmic rodent cannot effect the conversion of glyceric aldehyde to dihydroxyacetone. (3) Dihydroxyacetone is a probable intermediate in the metabolism of carbohydrate.

The authors wish to express their gratitude to Dr. H. W. Dudley for conducting the observations on rabbits. The experiments on mice were carried out by J. A. H.

[1] The technique was essentially that employed by Irvine, Herring, and McLeod (Biochem. Jour., 1924, xviii., 1023).

[2] Communication to the Biochemical Society, Nov. 9th, 1925.

[3] Schmidt's Berichte, 1913, xlvi., 2327.

[4] Sansum and Woodyatt: Jour. of Biol. Chem., 1916, xxiv., 327.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—The following new appointments in the Tropical Division have been made; Dr. V. B. Wigglesworth, to be assistant in the department of entomology from Sept. 15th; Miss Joyce Leishman, B.Sc., to be research student and demonstrator in the department of helminthology from Sept. 20th; Dr. Leslie J. Davis, to be research student and demonstrator in the department of tropical pathology and bacteriology from Oct. 1st; and Mr. H. S. Leeson, of the department of entomology, to be assistant to Dr. Ross in Southern Rhodesia for the purposes of carrying out research work in entomology. The post of senior laboratory assistant in the department of entomology, thus rendered vacant, has been filled by the appointment of Mr. H. J. Sutton. Mr. G. H. E. Hopkins, who assisted Dr. Buxton during the Samoan Expedition, has had his appointment extended to the end of the present year. As from Jan. 1st, 1927, Mr. Hopkins has been appointed to undertake research work in the West Indies into the activities of Stegomyia.

Reviews and Notices of Books.

BONE DISEASES.

The Inflammatory and Toxic Diseases of Bone. By R. LAWFORD KNAGGS, *M.C.*, F.R.C.S., Consulting Surgeon to Leeds General Infirmary; formerly Professor of Surgery in the University of Leeds. Bristol: John Wright and Sons, Ltd. 1926. Pp. 416. 20*s*.

GREAT difficulties beset an author who essays to write a treatise upon bone diseases. Exact knowledge of the ultimate meaning of the phenomena of so many of them is wanting; the relationship of signs and symptoms to the pathological process is obscure, so that he is driven to a meticulous description of the minute anatomy, gross appearances, and clinical features without being able to lay emphasis upon the really essential things. Prof. Knaggs has attacked the problem of writing what must necessarily be largely a descriptive treatise so successfully that the reader experiences none of the tedium so often associated with text-books of this kind. In general the author defines the disease and then describes the clinical features of it, thus naturally leading up to accounts of what may be called the museum appearances and histology, followed by a discussion of the pathology. What makes these pages so interesting is the inclusion of accounts of the cases upon which the original descriptions were based. Often, indeed, we read the discoverer's own words. Museums and libraries have been exhaustively searched for illustrative examples, and numerous cases from the author's own extensive experience have been added. How many of us know that the first patient suffering from leontiasis ossea, of whom we have a clinical account, was the son of Fourcade, a Perpignan surgeon? This boy, who began to suffer at 12 years of age, lived to 45, and a most remarkable photograph of his macerated skull appears on page 339. This particular section is a good example of how interesting a complete and scholarly description of an obscure disease can be made. But it is not only the rare conditions which receive such careful treatment. Should the reader desire information upon a common infection such as acute osteomyelitis, he will be sure to find it here, and at the end of the chapter a satisfyingly complete bibliography. There are nearly 200 illustrations, which include a number of exceptionally good microphotographs by Mr. G. R. Rodman.

The author is to be congratulated upon the production of a book which will undoubtedly, owing to its completeness, take its place as a work of reference, whilst at the same time it will be read with enjoyment by all interested in bone diseases.

PUBLIC HEALTH.

A Text-book of Public Health. Ninth edition. By E. W. HOPE, O.B.E., M.D., D.Sc., Professor of Public Health, University of Liverpool; and C. O. STALLYBRASS, M.D., D.P.H., Assistant Medical Officer of Health, City of Liverpool. Edinburgh: E. and S. Livingstone. 1926. Pp. 340. 15*s*.

THIS book has been largely rewritten and brought up to date; new chapters on epidemiology, maternity and child welfare, and industrial hygiene have been added. It now covers adequately, within the scope of 340 pages, the whole field of public health activity. We have examined it closely in order to detect any omission of modern work in the various provinces of hygiene, and are satisfied that no significant extensions of knowledge or changes of opinion have been overlooked by the authors. Even the quite recent work of Patsumi Takahasi and his fellow-workers on the extraction of the fat-soluble vitamin, biosterin, is noticed. Obviously a text-book of this kind suffers a little from its very quality of completeness. It must be compressed into small bulk and is therefore somewhat dogmatic. Moreover, the attempt to fit new theories into old sometimes gives rise to obscurity. For instance, on page 142 it seems to be accepted that sites recently made up by tipping of town refuse are hygienically unsuitable for dwelling-houses, although the influence of such soils on health, if any, is ignored in the section on p. 144, which deals with the relation of soil to disease. An ideal text-book for students on this subject would contain an introductory or concluding chapter dealing with the present state of our knowledge and practice of hygiene, and warning the student that many current views, being the product of empiricism, will probably have to be revised in the light of future scientific experiments. On the whole, however, the authors have successfully steered a middle course between the orthodoxy of the older sanitarians and the tendency to iconoclasm of the younger school. The book is published at a price which brings it within the reach of both the undergraduate and the post-graduate student, to both of whom and to their teachers we commend it without hesitation.

Organisation and Administration of the Public Health Department. By W. A. LEONARD, Chief Clerk and Statistician in the Public Health Department, Birmingham. London: Sir Isaac Pitman and Sons, Ltd. 1926. Pp. 148. 6*s*.

WITH the growth of modern public health departments, and especially of that side of their work which entails the preservation over long periods of records affecting children or persons suffering from chronic ailments, administrative technique has become of increasing moment. It is so important that no medical officer of health can afford to neglect it, and yet it involves so much attention to detail that the medical officer who tries to give this attention may have little time left for cultivating that broader outlook on preventive medicine which is still more essential. It is here that an efficient secretariat counts, and we welcome the publication of a book such as the one under review, which contains the fruit of a layman's long experience in the administration of health matters. Mr. Leonard deals very briefly with the various branches of public health administration, and the bulk of his book is made up of record forms—presumably those used in Birmingham—applicable to each branch. Some of these forms are based on models issued by Government departments, and others are no doubt specially adapted to the circumstances of the town where they were devised, but it is useful to have them bound together for reference. Here and there the letterpress shows a lack of familiarity with generally accepted public health methods, but on the whole it can be recommended to students preparing for a public health or sanitary inspector's qualification, and it will also be of interest to those actually working in public health departments.

"SHOCK" TREATMENT OF MENTAL DISEASES.

Traitement des Maladies Mentales par les Chocs. Par C. PASCAL, Médecin en Chef des Asiles publics d'alienés de la Seine, et JEAN DAVESNE. Paris: Masson et Cie. 1926. Pp. 184. 2*s*. 6*d*.

A SMALL book which makes suggestive and interesting reading, though there is much in it which the English student will find puzzling, resulting from the habit of some French writers of multiplying divisions and subdivisions of the subject under discussion.

There are two parts to this work. The first deals with the rôle of emotion in the production of the psychoses, and concludes that emotional experiences, whether sudden and acute, or minimal and prolonged, must not be relegated to a secondary place in the causation of mental diseases. The authors insist that affect plays a direct and primary part in the genesis of the psychoses. They recall the work of Cannon, Widal, Abrami, and others, and point out the far-reaching impression of affect on the vegetative nervous system, and so on the whole organism.

Emotions play their part by the biochemical changes they set up. The phenomena of anaphylaxis, sensitisation, desensitisation, hæmoclasic crises, and the proteopexic functions of the liver are all used skilfully by the authors to illustrate the importance of emotional factors in the causation of the psychoses. The second part of the book deals with actual treatment by "shock" methods, such as abscess formation, the injection of peptones and of nucleins, infectious diseases, malarial therapy, tuberculin injections, and the use of radio-active substances. Emotional experiences as curative agents are also discussed, with the mechanism by which such cures might be explained in biochemical terms. The authors may, we believe, lay claim to an original method of "shock" therapy. It consists of the intramuscular injection of blood obtained from a patient who is convalescent after a course of "shock" therapy. The patient giving the blood must obviously be free from syphilis and tuberculosis, and a simple test for determining the compatibility or incompatibility of the two bloods is described. The authors state that satisfactory results are obtained, and that remarkable improvements in the general condition follow a course of these blood injections, which they term "homohémothérapie."

Dr. Pascal and her collaborator have written a work which will be enjoyed by all practising psychiatrists. Some of it may be speculative, but much is original, and suggestive of new outlooks on mental disorders and on their treatment.

PEDIATRICS.

Diseases of the New-born. By J. A. FOOTE, M.D., Professor of Children's Diseases, Georgetown, U.S.A. London: J. B. Lippincott. 1926. Pp. 231. 21*s*.

THIS work, which is described as a monographic handbook, has been written by Prof. Foote in collaboration with five members of the Georgetown Medical Faculty, and gives a comprehensive view of the subject both from the medical and the surgical points of view. It does not confine itself to disease, but contains useful accounts of the routine management of new-born infants and of breast-feeding. Birth palsies and hæmorrhage hardly receive the attention which they deserve, and the only reference to the important work of Schwartz is a footnote on birth hæmorrhage and palsies. Skin affections are described fully, and are particularly well illustrated. A good account is given of the early manifestations of congenital syphilis and their treatment; the author has obtained the best results with the arsphenamin compounds. A most useful chapter contains detailed instructions on the technique of various diagnostic and therapeutic measures, including cistern puncture. This book is clearly written and well illustrated; it should be especially useful to general practitioners who undertake midwifery.

Diagnostik und Therapie der Kinderkrankheiten. Fourth edition. By Prof. F. LUST (Karlsruhe). Berlin and Vienna: Urban and Schwarzenberg. 1926. Pp. 508. M.10.50.

THE fourth edition of Prof. Lust's text-book contains numerous additions throughout the text with but little alteration in form. Close printing and the absence of illustrations render this book much more comprehensive than is indicated by its size, and the ground which is covered is unusually extensive. Scarcely any space is devoted to questions of ætiology or pathology, but concise, condensed accounts are given of the diagnosis and treatment of almost every variation of disease met with in infancy and childhood. A large proportion of the work is devoted to treatment, the author's procedure being to present one method in detail rather than to discuss and compare a number of different ones. The final section contains a large amount of useful information on therapeutics, giving the composition of cereals and other preparations used for infant feeding, and the doses of drugs suitable for different ages. A work of reference for practitioners, this book may be strongly recommended.

Von den Akut-Infektiösen Respirationsstenosen der Kinder. By Dr. DIONYS POPISCHILL (Vienna). Berlin: S. Karger. 1926. Pp. 42. M.2.40.

THIS monograph was to some extent written in response to a series of articles which appeared in the *Deutsche med. Wochenschrift* during the last two years. The author's views differ widely from those of A. Schlossmann, the writer of the first of these articles, who considered that the serum treatment of diphtheria had rendered early tracheotomy unnecessary in all but exceptional cases. Dr. Popischill emphasises the difficulty of differential diagnosis in laryngeal obstruction, or perhaps its impossibility, stating that he has been unable to ascertain whether the infection had been diphtheritic not only in some children who had recovered, but even by post-mortem examination of some fatal cases. He has, moreover, found that the effects of serum in definitely diphtheritic cases has been both too slow and too uncertain to obviate tracheotomy in many patients. He is insistent upon the variability of symptoms and course in different epidemics, and describes the changes which he has observed in the type of disease in Vienna since the 'nineties; this "Genius epidemicus" is to him one of the significant factors in prognosis and treatment. Dr. Popischill considers that low tracheotomy has many advantages over intubation, and that its early application is the safest course in a large number of cases of primary laryngeal diphtheria. He draws attention to the high mortality in cases of secondary tracheotomy after unsuccessful intubation. The relative indications for these two measures in different types of case are fully discussed, as are the uses of morphia, open-air treatment, and baths. This monograph should be of considerable interest to all who are specially concerned with the treatment of infectious fevers.

HANDBOOK ON MEDICAL ELECTRICITY AND RADIOLOGY. By JAMES R. RIDDELL, F.R.F.P.S. Edinburgh: E. and S. Livingstone. 1926. Pp. 239. 8*s*. 6*d*.

THIS handy little volume is written for the student and is intended as a survey of those physical agents which he will find of value in the practice of medicine. The first two chapters are devoted to electrotherapeutics. Diathermy, the most potent of all recent forms in which electrical power has been brought to the aid of the doctor, is adequately dealt with. A chapter is devoted to the rationale and diagnostic use of electrical currents in the examination of nerves and muscles, and includes ten pages of tables and diagrams of motor points. It is a short but very useful section. Passing to X rays, Dr. Riddell summarises the physical aspect of the subject, and succeeds in outlining the salient points of the action of these rays on the living tissues. The diagnostic and therapeutic uses of X rays and radium are compressed into 145 pages, and a few pages on carbon dioxide snow complete the book. When detailing the dangers attendant on the use of radiations, Dr. Riddell states that "the Committee of the National Physical Laboratory has issued recommendations." These recommendations were in fact drawn up by the X Ray and Radium Protection Committee, which is representative of practically all X ray interests. This committee includes a member of the staff of the National Physical Laboratory, which laboratory undertakes to carry out inspection of apparatus and departments, issuing reports as to whether or not these comply with the recommendations.

The author has undertaken an exceedingly difficult if not an impossible task in attempting to give a summary of so many big subjects in so small a compass, and, up to a point, has succeeded fairly well. The book is to some extent marred by the poor quality of the illustrations, which are neither well selected nor

well reproduced. A diagram purporting to represent the normal stomach and duodenum pictures the last-named organ curling inwards towards the spine. But, with its limitations, the book will serve a useful purpose. An outline of this sort represents the minimal equipment which should be possessed by modern practitioners of medicine, and this volume can be recommended to those who have no time to study the subject in more detail.

THE PEAKS OF MEDICAL HISTORY.

An Outline of the Evolution of Medicine. By CHARLES L. DANA, A.M., M.D. New York: Paul B. Hoeber. 1926. Pp. 105. $3.

THIS is a useful little book although of necessity sketchy; an attempt to compress the details of medical history from Hippocrates to Jenner and later into a space of 105 pages leaves a mere outline. Dr. Dana divides the term with which he deals into six periods, the peaks being Hippocrates, the Alexandrian School, Galen, the Renaissance under Vesalius, Harvey and the beginnings of modern physiology, and Jenner and modern medicine. There are a number of excellent illustrations and some useful bibliographical notes, although the statement on p. 97 that Arnold of Villanova was the author of the Regimen Sanitatis Salernitanum requires modification. Another statement on p. 66 should be corrected in a second edition. Dr. Dana, in speaking of Cardan's De Vita Propria, says it "is placed among the three great autobiographies of literature; the other two being Cæsar's 'Annals' and Rousseau's 'Confessions.'" The Annals of Cæsar must come from the same library as that Second Epistle to the Ephesians mentioned by Dickens, and we think that there are other autobiographies which certainly take precedence of those mentioned by Dr. Dana.

JOURNALS.

JOURNAL OF MENTAL SCIENCE.—A special number of this journal is entirely devoted to the presidential address delivered by Lieut.-Colonel J. R. Lord last July at the annual meeting of the Royal Medical Psychological Association. This address contains many valuable and practical suggestions. He is anxious that clinical meetings under the auspices of the Association should be held for much smaller areas than its Divisions now comprise, and that they should not be limited, as heretofore, to members of the Association, but should be open to general practitioners and others in the neighbourhood who might be interested. He further suggests the creation and publication of an authoritative medico-psychological glossary of terms in everyday use in psychiatry and psychology, and appears to have some confidence that the definitions of the glossary would be of general acceptance. Colonel Lord further set before his audience the lofty ideal that every individual case of mental disorder should from its commencement be treated as one for special research; indeed, that there should be no distinction between what is known as "routine practice" and "research." He makes eloquent appeal for the establishment of team-work wherever mental disorder is treated, emphasising the point that the problems of most cases are not to be solved by the unaided effort of any one branch of medicine. It is not to be assumed that in any one case psychogenic ætiological factors are alone at work even if the results of physical examination are negative; nor, similarly, can it be assumed that because physical factors are operating, psychogenic factors are absent. One of the reasons for the issue of this special number is to afford the Association time for the consideration of certain resolutions arising out of the presidential address which will be brought forward at the November quarterly meeting. These resolutions formulate a scheme for the furtherance of research and clinical psychiatry, and a close study of Colonel Lord's address may convince many of the importance of the scheme.

STUDENTS' GUIDE—SESSION 1926–27.

DENTAL SURGERY.

REGISTRATION on the Medical Register entitles a practitioner to practise as a dentist, although he cannot register as such without degree or licence in dentistry; but few dental appointments at general or special hospitals or dispensaries are available save to those with a special diploma.

In THE LANCET of August 28th we outlined the constitution of the Dental Board of the United Kingdom, and the regulations in regard to the registration of dental students.

The Examining Bodies in Dentistry which grant degrees or diplomas in the subject are as follows:—

Royal College of Surgeons of England.—Licence in Dental Surgery.

Royal College of Surgeons, Edinburgh.—Licence in Dental Surgery. The College also grants a Higher Dental Diploma which is registrable in the Dentists Register as an additional qualification.

Royal Faculty of Physicians and Surgeons of Glasgow. Licence in Dental Surgery. The curriculum, which is similar to that of Edinburgh, includes in addition dental bacteriology.

Royal College of Surgeons in Ireland.—Licence in Dental Surgery.

University of Birmingham. — Dental licence; degrees of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.).

University of Bristol.—Licence in Dental Surgery; degrees of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.).

University of Durham.—Licence in Dental Surgery; degrees of Bachelor of Dental Surgery (B.D.S.) and of Master of Dental Surgery (M.D.S.).

University of Leeds.—Licence in Dental Surgery; degrees of Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.).

University of Liverpool.—Licence in Dental Surgery; (L.D.S.); degrees in Dental Surgery (B.D.S. and M.D.S.).

University of London. — Degree of Bachelor in Dental Surgery.

University of Manchester.—Degrees of B.D.S.; and a licence in Dentistry.

University of Sheffield.—Degree of Bachelor of Dental Surgery; and the diploma of Licentiate in Dental Surgery.

Queen's University of Belfast.—Licentiate in Dental Surgery, Bachelor of Dental Surgery, and Master of Dental Surgery.

In the following syllabus the respective requirements of the various examining bodies in dentistry are set forth, together with the facilities for dental study offered by certain other institutions.

THE EXAMINING BODIES IN DENTISTRY.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have passed the required Preliminary Examination in General Education on or after Jan. 1st, 1923.

1. Candidates for the Licence in Dental Surgery of the Royal College of Surgeons of England are required to pass one of the Examinations in General Education recognised by the Conjoint Examining Board in England, and the Pre-Medical Examination in Chemistry and Physics conducted by that Board or one of the examinations recognised in lieu thereof, before they commence the curriculum of professional study for the Licence extending over four years.

2. Candidates who produce evidence of having been registered by the General Medical Council as Medical or Dental Students on or after Jan. 1st, 1923, will be considered to have passed the required Preliminary Examination in General Education and the Pre-Medical Examination.

3. Candidates who hold the degree of D.M.D. Harvard, D.D.S. Pennsylvania, D.D.S. Michigan, D.D.S. Illinois, D.D.S. St. Louis, Missouri, D.D.S. Northwestern University, Chicago, D.D.S. Minnesota, D.D.S. Tufts College, Boston, B.D.S. Sydney, or the Licence of the Dental Board of Victoria, Australia, are not required to pass these Examinations.

First Professional Examination.—1. The First Professional Examination consists of Part I. Dental Mechanics, Part II. Dental Metallurgy and the Properties of Dental Materials, and Part III. Section (*a*) General Anatomy and Physiology, Section (*b*) Dental Anatomy and Physiology, and is held in January or February, April, and September or October in each year.

2. Candidates may present themselves for the several Parts of the First Professional Examination together or separately, but before admission to any part of the Examination they must produce evidence of having passed the required Preliminary Examination in General Education and the required Pre-Medical Examination or a certificate of having been registered as a Medical or Dental Student by the General Medical Council.

Part I. *Dental Mechanics.*—3. This Examination is a practical one, conducted in the Mechanical Laboratory of one of the Dental Hospitals in London.

4. Candidates must give 21 days' notice in writing of their intention to present themselves for the Examination, and at the same time forward certificates :—

(1) Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Dental Mechanics. One year at least of this study must be taken in the Mechanical Department of a recognised Dental Hospital where the arrangements for teaching Dental Mechanics are satisfactory to the Board of Examiners in Dental Surgery. Part or the whole of the rest of the course may be taken as a pupil with a competent dentist provided that time spent as a private pupil shall be at least twice the time required for the corresponding instruction* taken at a Dental School.

(2) Of having attended at a recognised Dental Hospital and School : (*a*) A course of lectures on Dental Mechanics ; (*b*) a course of Practical Dental Mechanics, including the manufacture and adjustment of 6 dentures and 6 crowns.

6. Any candidate referred at this Examination who does not hold a registrable Dental Qualification will be required, before admission to re-examination, to produce a certificate of having received three months further instruction under the conditions specified in Certificate (1) paragraph 4.

Part II. *Dental Metallurgy and the Properties of Dental Materials.*—7. This Examination is conducted by written paper.

8. Candidates must give 21 days' notice in writing of their intention to present themselves for the Examination, and at the same time forward a certificate :—Of having attended at a recognised Dental Hospital and School: (*a*) A course of lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy.

9. Any candidate referred at this Examination who does not hold a registrable Dental Qualification will be required, before admission to re-examination, to produce a certificate of having worked in a Dental School, to the satisfaction of the Dean, for a further period of three months.

Part III. (*a*) *General Anatomy and Physiology,* (*b*) *Dental Anatomy and Physiology.*—10. This Examination is partly written and partly oral.

11. Candidates may enter for Section (*a*) only or for Sections (*a*) and (*b*) together on producing the required certificates, but they will not be allowed to proceed with Section (*b*) until they have passed in Section (*a*). In the case of a candidate who enters for both Sections and fails in Section (*a*) the fee paid for admission to Section (*b*) will not be forfeited, but will be credited to the candidate on readmission to examination in that Section. Candidates who enter for both Sections together may pass in Section (*a*) although failing to pass in Section (*b*).

12. Candidates must give 21 days' notice in writing of their intention to present themselves for the whole or for one Section of this examination and at the same time forward certificates :—

(1) For Part III. (*a*). Of having attended at a recognised Medical School : (*a*) Courses of instruction in Anatomy, including special demonstrations on prepared dissections during three terms ; (*b*) a course of dissections to include, if possible, the head and neck, during one term ; (*c*) courses of instruction in Physiology, including General Biology, Biochemistry, and Biophysics, during three terms ; (*d*) a course of instruction in Histology.

(2) For Part III. (*b*). Of having attended at a recognised Dental School : (*a*) A course of instruction in Dental Anatomy and Physiology ; (*b*) a separate course of instruction in Dental Histology, including the preparation of Microscopical Sections.

13. A candidate referred at this examination who does not hold a registrable Dental Qualification will be required, before readmission to Section (*a*), to produce a certificate of three months' additional study of Anatomy and Physiology at a recognised Medical School, and will be required before readmission to Section (*b*) to produce a certificate of having worked in a Dental School, to the satisfaction of the Dean, for a further period of three months.

14. *Exemptions.*—Candidates who have passed Section I. of the First Professional Examination of the Conjoint Examining Board in England, or who produce evidence of having passed the Examination in Anatomy and Physiology for a degree, or other qualification, in Medicine or Surgery, registrable under the Medical Act of 1886, or for the degree of M.B. or M.D. of a Foreign or Colonial University recognised by the Conjoint Examining Board in England, are not required to pass Section (*a*).

Second Professional Examination.—1. The Second Professional Examination is held in February, May or June, and November in each year, and consists of : Part I., General Surgery and Pathology ; Part II., Dental Surgery and Pathology, and Practical Dental Surgery.

2. Candidates who have passed the First Professional Examination at least four months† previously may present themselves for Part I. only on producing the certificates mentioned in paragraph 6 of this section, or they may enter for the whole Examination at one time on producing the certificates mentioned in paragraphs 6 and 10 of this section.

3. Candidates must pass in Part I. before proceeding to Part II.

4. Candidates who enter for the whole Examination at one time may pass in Part I. although failing to pass in Part II. ; but if they fail to pass in Part I. they will not be allowed to proceed with the Practical and Oral Examinations in Part II. In such cases the fee paid for admission to Part II. will not be forfeited, but will be held over until such time as the candidate is readmitted to examination in that Part.

Part I. *General Surgery and Pathology.*—5. This Examination is partly written and partly oral.

6. Candidates must give 21 days' notice in writing of their intention to present themselves for this Examination, and at the same time forward certificates :—

(1) Of having attended at a recognised Medical School : (*a*) A course of instruction‡ in Surgery during two terms ; (*b*) a course of instruction in Medicine during two terms ; (*c*) a course of instruction in General Pathology (including Bacteriology) during two terms. (2) Of having acted as Surgical Dresser in the Out-patient Department of a recognised Hospital for three months. (3) Of having attended, at a recognised Hospital or Hospitals, the practice of Medicine

* This instruction may be taken prior to the date of passing the Examination in General Education and the Pre-Medical Examination, but will not be counted as part of the required four years of professional study unless taken after passing the Pre-Medical Examination.

† The interval of six months is not required in the case of a colonial or foreign dentist.

‡ These courses of instruction must be attended after the completion of the courses in Anatomy and Physiology.

and Surgery, including clinical lectures, for 12 months. (4) Of being 21 years of age.

7. Any candidate referred at this Examination who does not hold a registrable Dental Qualification will be required, before admission to re-examination, to produce a certificate of such additional study during three months at a recognised Medical School and Hospital as the Teachers of the School may determine.

Exemptions.—8. Candidates who are Members of the College or who have passed the Examination in Surgery of the Conjoint Examining Board in England, or who produce evidence of having passed the Examination in Surgery for a Degree, or other Qualification in Medicine or Surgery registrable under the Medical Act of 1886, are not required to pass Part I. of the Second Professional Examination.

Part II. *Dental Surgery and Pathology.*—9. This Examination is partly written, partly oral, and partly practical. The oral examination is conducted by the use of preparations, casts, drawings, &c. At the practical examination candidates may be examined:—

(*a*) On the treatment of Dental Caries, on the preparation and treatment of teeth by filling with gold or other material, by inlaying or by crowning, and on other operations in Dental Surgery. (Candidates must provide their own instruments.) (*b*) On the treatment of abnormalities of position of the teeth of children. (*c*) On Clinical cases.

10. Candidates must give 21 days' notice in writing of their intention to present themselves for this Examination, and at the same time forward certificates:—

(1) Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a Medical or Dental Student, or of having passed the Pre-Medical Examination conducted or recognised by the Conjoint Examining Board in England. (2) Of having attended at a recognised Dental Hospital and School: (*a*) A course of Dental Surgery and Pathology; (*b*) a separate course of Practical Dental Surgery; (*c*) a course of Dental Bacteriology; (*d*) a course of Dental Materia Medica; (*e*) a course of practical instruction in the administration of such Anæsthetics as are in common use in Dental Surgery. (3) Of having attended at a recognised Dental Hospital and School, or in the Dental Department of a recognised General Hospital, the practice of Dental Surgery during two years.

11. Any candidate referred at this Examination who does not hold a registrable Dental Qualification will be required before admission to re-examination to produce a certificate of three months' additional study at a recognised Dental Hospital.

Fees.—The fee for the Diploma in Dental Surgery is 20 guineas.

Synopses of examinations and all further information can be obtained from the Director of Examinations, Examination Hall, Queen-square, London, W.C. 1.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—Regulations giving a list of Preliminary Examinations recognised for obtaining the Licence in Dental Surgery, as well as of the subjects of the Professional Examinations, may be obtained from Mr. D. L. Eadie, Clerk to the Royal College of Surgeons, at 49, Lauriston-place, Edinburgh. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies and of three years' instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates must also have attended a course of instruction at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the Diploma in Surgery. In addition they will be required to have attended in a recognised dental hospital, or with teachers recognised by the College, special courses of lectures and instruction in Anatomy and Physiology (Human and Comparative), Surgery, Pathology, Materia Medica, Dental Histology, and Practical Dental Mechanics and Metallurgy; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Practical instruction in Mechanical Dentistry from a registered Dentist, or in the Mechanical Department of a recognised Dental Hospital and School, for three years. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination, and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations, and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. First Professional Examination: The candidate must have attended the required courses. The examination embraces (1) Chemistry and Physics; and (2) Anatomy and Physiology. The fee is £5 5*s*. for the complete examination, and £3 3*s*. is payable for each division. In all cases of rejected candidates the fee for re-entry is £3 3*s*. Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is 21 years of age, and must pay a fee of £10 10*s*., for re-entry £5 5*s*. The examination embraces (1) Surgery and Medicine; and (2) the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, Dental Materia Medica, Dental Mechanics and Dental Metallurgy, with a practical as well as the written and oral examinations in the subjects of Dental and Oral Surgery, Pathology, and Mechanics. The candidate will be tested in the Treatment of Dental Diseases, in Operative Dentistry, the Administration of Anæsthetics, Orthodontics, and in Prosthetic and Mechanical Dentistry. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations or other recognised examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £15 15*s*. payable for the dental diploma. Candidates applying for copies of Regulations should state date of registration as a dental student. Fees and schedules must be lodged with the Clerk not later than one week before the examination.

Separate Regulations are issued for candidates registered as Dental Students after Jan. 1st, 1923, for whom there is a much more extended course.

Higher Dental Diploma.—The College grants a Higher Dental Diploma which is registrable in the Dentists Register as an additional qualification. Every candidate for the Higher Dental Diploma shall produce evidence that he has been engaged in the study or practice of his profession as a Registered Dentist for at least one year subsequent to his having obtained the Licence in Dental Surgery of the College, or a Licence or Qualification in Dental Surgery specially recognised by the College. Particulars as to the examinations can be obtained from Mr. D. L. Eadie, Clerk to the Royal College of Surgeons, 49, Lauriston-place, Edinburgh. The fee payable by Licentiates of the College is £15 15*s*. For all other candidates £21. A fee of £10 10*s*. is retained for examination expenses in the case of referred candidates.

The examination embraces the following branches of Dental Science and practice: Dental Surgery, Anatomy, Pathology and Bacteriology, Prosthesis, Anæsthesia, and Dental Radiology. The examination will be clinical and practical as well as written and oral. Candidates will be expected to show a high degree of knowledge and skill.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh, but embrace Dental Bac-

teriology. Candidates can enter for the First Examination in three divisions, the first embracing Physics and Chemistry, the second Dental Metallurgy and Dental Mechanics, and the third Anatomy and Physiology. The examination in Dental Mechanics is practical; and there is at the Final Examination an examination in Practical Dentistry conducted in a dental hospital. Copies of regulations, &c., to be obtained from Mr. Walter Hurst, Registrar, Faculty Hall, 242, St. Vincent-street, Glasgow. Candidates applying for Regulations should state date of registration as a dental student.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—Candidates for the licence in Dental Surgery are required to pass three professional examinations, and to produce certificates of having, subsequently to registration as a Dental Student, passed the examination in Biology, and attended courses of instruction in the following subjects at a recognised school of medicine: (*a*) Human anatomy, with dissections and demonstrations, for three academic terms. (*b*) Physiology, theoretical and practical, including Dental Physiology lectures for two academic terms. (*c*) Histology, for one academic term. (*d*) Chemistry and Physics as applied to Dentistry. For the second examination certificates must be produced of having attended, at an institution recognised by the College for the purpose, the following courses: (*a*) General Pathology (including Bacteriology) for three academic terms. (*b*) Medicine for two academic terms. (*c*) Surgery for two academic terms. (*d*) The practice of a general hospital, with certified instruction in Clinical Medicine, Clinical Surgery, and Venereal Diseases, for three academic terms. For the final examination evidence must be produced of having been engaged during a period of two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the direction of the Superintendent of the Mechanical Department of a recognised Dental Hospital where the arrangements for teaching Mechanical Dentistry are satisfactory to the Council of the College; of having attended, at a recognised institution, courses of instruction in (*a*) Dental Surgery and Pathology, Orthodontia, and the Materia Medica and Therapeutics applicable to Dental Surgery. Lectures. Two courses. (*b*) Dental Mechanics. Lectures. Two courses. (*c*) Anæsthetics. One course. (*d*) The practice of a Dental Hospital, or of the Dental Department of a General Hospital. Twenty-four calendar months. (*e*) Dental Metallurgy. (*f*) A course of Radiology; of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a Dental Student: four years of professional study; and of being 21 years of age.

The subjects of the first examination are Anatomy, General, and Physiology and Histology. For the second examination (*a*) General Pathology (including Bacteriology), (*b*) Medicine and Surgery. For the Final Examination, General Surgery and Dental Pathology, with the Materia Medica and Therapeutics applicable to Dental Surgery, Dental Mechanics and Metallurgy, Anæsthetics, Orthodontia. Candidates must pass in all the subjects set at each examination which in the second and final parts will be partly vivâ voce and partly practical, and will include the examination of patients and the performance of dental operations. The total fee for the Diploma in Dental Surgery is 21 guineas.

UNIVERSITY OF BIRMINGHAM.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board. The instruction at the Dental Hospital is carried out under the direction of the University Dental Clinical Board, so that students may fully qualify themselves for the Dental Diploma (L.D.S.) of this and other universities and licensing bodies. There is a special and well-equipped Dental Museum: The "John Humphreys Odontological Museum." An Entrance Exhibition, value £37 10*s.*, is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—

1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. 4. *A*. In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees: (*a*) Elementary Biology and Organic Chemistry, (*b*) Anatomy and Practical Anatomy, and (*c*) Physiology and Practical Physiology. *B*. That he has passed the class examinations in: (*d*) One Special Course of Lectures on Medicine, (*e*) One Special Course of Lectures on Surgery, and (*f*) Pathology and Bacteriology. *C*. That he has attended courses and passed the class examinations in: (*g*) Dental Histology and Patho-Histology, (*h*) Comparative Dental Anatomy, and (*k*) Dental Surgery and Prosthetic Dentistry. *D*. That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period of not less than six months. 5. The Final Examination will deal with the subjects in Classes *C* and *D*. 6. On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a thesis containing original work, and investigations in some subject connected with Dentistry, which theses shall be submitted to examiners to be nominated by the Dental Advisory Board.

UNIVERSITY OF BRISTOL.—Candidates for the degree of Bachelor of Dental Surgery must be not less than 21 years of age and shall have pursued the courses prescribed by University regulations during not less than four years after passing the first examination in the subjects of Chemistry and Physics, of which three shall have been passed in the University. All candidates for the degree of B.D.S. are required to satisfy the examiners in the several subjects of four examinations. The First Examination: The subjects are Chemistry, Physics, and Biology, and the curriculum extends over one year.* The Third Examination: The subjects are Dental Mechanics, Dental Metallurgy, and Dental Materia Medica, and the candidate shall produce evidence of having served for three years an approved pupilage in Dental Mechanics.† The Second Examination: The subjects are Anatomy, Physiology, and Histology, Dental Anatomy, and Dental Histology. The Final Examination: The subjects are Medicine and Surgery, Dental Surgery (including Prosthetics), Operative Dental Surgery, and Dental Bacteriology. Degree of Master of Dental Surgery: Candidates shall be Bachelors of the University, shall present a Dissertation on some subject of Dental Surgery to be approved by the Examiners, and pass an examination in Dental Surgery. Diploma in Dental Surgery: Candidates need not be undergraduates, but shall have passed an entrance examination satisfactory to the University before being admitted

* Candidates who have passed the Higher School Certificate approved by the Board of Education in these subjects will not be required to sit for the first examination for either the B.D.S. or the L.D.S., and will be regarded as having completed one year of study.

† This pupilage must be taken either in the University laboratories or those of some institution recognised for the purpose by the University.

to any professional examination; the curriculum extends over four years from the date of passing a preliminary science examination in Chemistry and Physics. A three years' pupilage in Mechanical Dentistry is required† and four examinations must be passed, the subjects of which agree with those of the B.D.S. Medicine is not required for the Final Examination. Candidates who are already registered medical practitioners shall be further exempted from study and examination in Physics and Chemistry, Anatomy, Physiology and Histology, Medicine, and General Surgery.

UNIVERSITY OF DURHAM.—Every Dental student must, at the commencement of his studentship, be registered in the manner and under the conditions prescribed for Medical students.

Licence in Dental Surgery: The first examination consists of three parts, which may be passed separately. Part 1, Organic Chemistry. Part 2, Biology. Part 3, Theoretical Dental Mechanics, Dental Metallurgy (Theoretical and Practical). Second Examination: Anatomy, Physiology (including Biochemistry and Biophysics), Dental Anatomy and Dental Histology. Third Examination: Pathology and Bacteriology, Practical Dental Mechanics, Dental Materia Medica and Therapeutics. Final Examination: Medicine, Surgery, Dental Surgery and Pathology, Orthodontics, Operative Dental Surgery, and Dental Prosthetics, and Anæsthetics.

A candidate before presenting himself for examination is required to furnish certificates of instruction in the required subjects, attended after registration as a dental student at recognised Colleges or Schools.

Degree of Bachelor of Dental Surgery (*B.D.S.*).—(*a*) For students taking their complete course of instruction in the University. Such students must pass the same matriculation tests as medical students, and the same pre-registration examination in Inorganic Chemistry and Physics. After registration students must spend five years in the University, on attendance on such subjects as Senate, on the recommendation of the Board of the Faculty of Medicine, may from time to time determine. They must attend the practice of the Newcastle-upon-Tyne Dental Hospital for not less than two and a half years. Six months of this time must be devoted to the study of the higher branches of dental science. There are four examinations.

The subjects of the *first* examination are Biology, Organic Chemistry, and Dental Mechanics and Metallurgy.

The subjects of the *second* examination are Anatomy, Physiology, Dental Anatomy and Histology.

The subjects of the *third* examination are Pathology and Bacteriology, Dental Materia Medica and Therapeutics, and Practical Dental Mechanics.

The subjects of the *final* examination are Medicine, Surgery, Dental Surgery and Pathology, and Orthodontia and Operative Dental Surgery. In this subject knowledge of a much higher standard, and more advanced practical work, is required than for the Licence in Dental Surgery.

(*b*) For candidates possessing a Licence in Dental Surgery of a British University. Candidates must study for at least one year in the University. During such year they must (*a*) attend a course of instruction in Pathology and Bacteriology, and (*b*) spend at least six months in the Newcastle-upon-Tyne Dental Hospital in the study and practice of the higher branches of dental science. They must also pass the third and final examinations for the degree of Bachelor of Dental Surgery.

Degree of Master of Dental Surgery (*M.D.S.*)—Every candidate for this degree must be a Bachelor of Dental Surgery of the University of not less than two years' standing, and present an essay embodying original work and research in some subject connected with dentistry. They must also perform to the satisfaction of the examiners a piece of special dental work demanding a high degree of skill and experience.

The examinations are held concurrently with the medical examinations, and the fees payable by candidates are as follow:—For the Licence in Dental Surgery: First, Second, and Third Examinations, each £3 10*s.*; Final Examination, £5; for Licence, £3; total, £18 10*s.* For the Bachelor of Dental Surgery: First, Second, and Third Examinations, each £5; Final Examination, £8; for the degree, £6 16*s.*; total, £29 16*s.* For the Master in Dental Surgery: examination, £5; degree fee, £6 6*s.* The practical examinations in dentistry are conducted at the Newcastle Dental Hospital.

UNIVERSITY OF LEEDS.—The degrees in Dental Surgery are Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.). All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation Examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I. and II. of the First Examination, and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the regulations of the University. No candidate will be admitted to the degree who has not attained the age of 21 years on the day of graduation. The Diploma in Dental Surgery (L.D.S.) is awarded to successful candidates after attendance on approved courses extending over not less than four years. The curriculum for the Diploma now includes the study of Biology for the First Examination. The classes in the Department of Dentistry begin on Oct. 1st. The instruction in the Preliminary subjects of Chemistry, Physics, and Biology are given in the main buildings of the University. The classes in the other subjects and the systematic courses in Dental subjects are held in the School of Medicine of the University in Thoresby-place. The clinical instruction is given in the Dental Hospital at the Leeds General Infirmary. Applications for the prospectus should be made to the Academic Sub-Dean of the Faculty of Medicine.

UNIVERSITY OF LIVERPOOL.—The University grants a Licence in Dental Surgery (L.D.S.) and degrees in Dental Surgery (B.D.S. and M.D.S.). The management of the curriculum (lectures, practical and clinical) is in the hands of the University Board of Dental Studies. The courses of systematic instruction are given in the main University buildings, and those in Dental Mechanics, Operative Dental Surgery, &c., are given in the University School Extension (opened 1922), adjoining the Dental Hospital, the laboratory of which is in charge of a skilled dental mechanic under the supervision of the Director of Dental Education. The clinical instruction is given in the Dental Hospital. Students can take the whole curriculum, including Dental Mechanics, at the University School of Dental Surgery. The times of the lectures at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. Fees: The fees for the complete courses, including Pupilage and Hospital Practice, are as follows: Degree of B.D.S., £250; M.D.S. (by research, £32; by examination, £27); L.D.S. (Liverpool), £198. Further information may be had from the Director of Dental Education, Prof. W. H. Gilmour.

In order to be admitted to the Bachelor's Degree in Dental Surgery a student must normally, after registration as an Internal Student, have—(1) Attended prescribed courses of study for five years at one or more Schools of the University. (2) Passed the following examinations:—(*a*) First Examination: *Part A:* (i.) Chemistry, (ii.) Physics, (iii.) Biology (Zoology and Botany); *Part B:* (iv.) Dental Metallurgy. Candidates may take Parts A and B separately. (*b*) Second Examination: *Part A* (i.) Anatomy, (ii.) Dental Anatomy, Dental Physiology, and Dental Histology; *Part B:* (iii.) Physiology; *Part C:* (iv.) Dental Mechanics.

Candidates may take Part A separately but must take Parts B and C together. Third Examination: *Part A:* (i.) Elementary Bacteriology, (ii.) Clinical Chemistry, (iii.) General Pathology; *Part B:* (iv.) Dental Materia Medica, (v.) Dental Mechanics and Dental Prosthetics. Candidates may take Parts A and B separately. Students who have received not less than two years' instruction in Dental Mechanics previous to Nov. 30th, 1922, with a Dentist registered under the provisions of the Dentists Act (1921) and who have passed a recognised examination in preliminary education may, on application, be registered as students for the Licence under certain conditions.

UNIVERSITY OF LONDON.—The curriculum for the degree of Bachelor of Dental Surgery covers five years from Matriculation. The Regulations for Internal and External Students may be obtained post-free on application to the Academic Registrar, at the University.

UNIVERSITY OF MANCHESTER.—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine. This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any other school in the kingdom, and the fullest opportunities for study are offered to students preparing for any of the professional examinations. Instruction adapted to the requirements of students preparing for the B.D.S. Degree and the Dental Diplomas of the University, the Royal College of Surgeons of England, and of other licensing bodies is given throughout the session both at the University and at the Dental Hospital of Manchester adjoining the University. The required general hospital practice is taken at the Manchester Royal Infirmary. Women students are admitted to the classes in the Dental Department, and for them common rooms are provided. The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 94½ guineas, payable in three equal yearly instalments. The composition fee for candidates for the University Diploma in Dentistry is 84½ guineas, payable in three equal yearly instalments. The composition fee for candidates for the L.D.S. of England is 94½ guineas, payable in three equal yearly instalments. Students who have already served their apprenticeship with a private practitioner, and who propose to complete the final portion of their attendance at the University and at an approved dental hospital, will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship. The composition fee does not include the hospital fees, the examination fees, nor the fee for the conferment of the degree or the diploma.

UNIVERSITY OF SHEFFIELD.—*Degree of Bachelor of Dental Surgery.*—A candidate must have attained the age of 22 years on the day of graduation and have pursued the courses of study required by the University regulations during a period of not less than five and a half years subsequent to matriculation and the passing of the further examination in Chemistry and Physics, three of such years at least having been passed in the University, one at least being subsequent to the passing of the First Examination.

First Examination: The subject of the examination is Biology. Candidates must have attended a course of instruction for one year after matriculation and the passing of the further examination in Chemistry and Physics. Second Examination: The subjects of the examination are Anatomy, Physiology, Dental Anatomy, Physiology and Histology; Dental Mechanics, Dental Metallurgy. Final Examination: The subjects of the examination are: Part I., Pathology and Bacteriology; Part II., Medicine and Surgery, Dental Surgery, including Materia Medica and Therapeutics. Candidates for Part II. must have completed five and a half years of professional study.

Degree of Master of Dental Surgery.—Candidates must have passed the examination for the degree of B.D.S. at least one year previously and before admission to the examination must have held for not less than six months a dental appointment in a hospital affording full opportunity for the study of Dental Surgery. Candidates shall not be required to but may present a thesis embodying observations in some subject approved by the Faculty and a candidate whose thesis is of exceptional merit may be exempted from any part of the examination.

Diploma of Licentiate in Dental Surgery.—A candidate must have attained the age of 21 years on the day upon which he is to receive the diploma, and have pursued the courses of study required by the University regulations during a period of not less than four years subsequently to passing the preliminary examination and the passing of the further examination in Chemistry and Physics. Two years must be passed in the University, one at least being subsequent to the passing of the First Examination.

First Examination: The subject of the examination is Biology. Candidates must have attended a course of instruction for one year. Second Examination: The subjects of the examination are Anatomy and Physiology, Dental Anatomy and Physiology, Dental Mechanics, Dental Metallurgy. Final Examination: The subjects of the examination are: Part I., Pathology and Bacteriology; Part II., Medicine and Surgery, Dental Surgery, including Materia Medica and Therapeutics. Candidates for Part II. must have completed the fourth year of professional study.

The Dental Composition Fees are as follows:—

For B.D.S.: 1st and 3rd years, £75; 2nd, 4th, and 5th years, £25.

For L.D.S.: 1st and 2nd years, £75; 3rd and 4th years, £25.

QUEEN'S UNIVERSITY OF BELFAST.—The following degrees and diplomas are now conferred: Licentiate in Dental Surgery, Bachelor of Dental Surgery, and Master of Dental Surgery. Lecturers have been appointed in Dental Surgery, Dental Mechanics, Dental Metallurgy and Materia Medica, and Orthodontia.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 18TH, 1926.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 120 (last week 106); scarlet fever, 1392; diphtheria, 973; enteric fever, 71; pneumonia, 409; puerperal fever, 45; cerebro-spinal fever, 4; acute poliomyelitis, 75; acute polio-encephalitis, 2; encephalitis lethargica, 38; continued fever, 3; dysentery, 28; ophthalmia neonatorum, 95. There were no cases of cholera, plague, or typhus fever notified during the week.

The notifications of poliomyelitis, which are 22 more than last week, come from many parts of the country, with special incidence in the county of Essex, 7; Hertford, 4; Kent, 5; Leicester, 31 (16 of these from Leicester C.B.); and Warwick, 4.

Of the 120 cases of small-pox, 96 were reported from the counties of Northumberland (10) and Durham (86). In Gateshead 19 cases (some of them since the issue of this return) are said to owe their origin to a family in which the children, although ill, were not medically examined and returned to school in an infectious condition.

Deaths.—In the aggregate of great towns including London, there were no deaths from small-pox, 5 (2) from enteric fever, 1 (0) from measles, 2 (1) from scarlet fever, 26 (1) from whooping-cough, 24 (2) from diphtheria, 217 (39) from diarrhœa and enteritis under 2 years, and 19 (4) from influenza. The figures in parentheses are those for London itself. A week with only a single death from measles is noteworthy.

Messrs. Allen and Unwin announce the forthcoming publication of "Fundamentals of School Health," by Dr. James Kerr.

THE LANCET.

LONDON: SATURDAY, OCTOBER 2, 1926.

BILIARY PHYSIOLOGY AND PATHOLOGY.

THE departments of medicine are no exception to DANTE GABRIEL ROSSETTI'S dictum

> ". . . . Till the world shall burn,
> It seems that all things take their turn;"

the nervous, respiratory, cardiovascular, and other systems have had their day of special popularity, and their intensive investigation, of course, continues. More recently the alimentary canal and its appendages, which for a time were being peacefully or otherwise penetrated by the surgeon, have been the subject of more extensive biochemical and experimental research, such as the fractional test-meals initiated by REHFUSS, of Philadelphia, and introduced into this country by Dr. ARTHUR HURST; the tests for hepatic efficiency (L. G. ROWNTREE, S. M. ROSENTHAL, G. H. WHIPPLE, H. MACLEAN and DE WESSELOW, HIJAMS VAN DEN BERGH), and the brilliant researches on biliary secretion of PEYTON ROUS and his collaborators at the Rockefeller Institute, New York; and of R. H. T. MANN and his team at the Mayo Clinic, Rochester. A sign of the times is found in the repeated discussions at the Medical Section of the British Medical Association on hepatic and biliary disease in alternate years since 1922; Prof. D. P. D. WILKIE, who took part in the recent discussion at Nottingham on Some Recent Developments in our Knowledge of the Biliary Tract (THE LANCET, July 31st, p. 234), opened by a fellow professor of surgery, EVARTS A. GRAHAM, of Washington University, St. Louis, U.S.A., now publishes (p. 689) an address delivered at St. Mary's Hospital Medical School on May 27th last on the Functions of the Biliary Passages in Relation to their Pathology. In this lecture he reviews the recent additions to our knowledge and from a wide practical experience provides thoughtful suggestions as to their bearing on the clinical manifestations of biliary disease.

The detection of the early stages of disease—that is, of a departure from normal function—necessitates an accurate knowledge of the healthy organism, and with regard to the physiology of the biliary tract there is not yet complete agreement on some points; for instance, there is considerable difference of opinion on the question whether or not the gall-bladder contracts; Prof. WILKIE speaks of its rhythmic contractions as a factor in assisting the concentration of the contained bile, and MCMASTER and ELMAN, of the Rockefeller Institute, in recent papers have proved experimentally that the gall-bladder of the unanæsthetised dog responds to the stimulation exerted by food with fairly vigorous contractions. If the gall-bladder does not possess the power of muscular contraction, as EVARTS GRAHAM and others have argued on the basis of direct observation of gall-bladders in many operations on man and in experiments under anæsthesia, while the bile-ducts are practically devoid of smooth muscle, the question arises as to the mechanism by which biliary colic—perhaps the most severe pain that human flesh is heir to—is produced. In addition to a sphincter-like collection of muscular fibres at the neck of the gall-bladder, as shown in Fig. III. (see plate) there is the well-known Oddi's sphincter at the lower end of the common bile-duct, which is tonically contracted except when bile is passing into the duodenum; from the available evidence Prof. WILKIE makes some suggestions as to the importance and results of persistent spasm of Oddi's sphincter, and mentions pain, though not frank biliary colic in so many words, as a result of spasm of this sphincter. Another result is biliary stasis, spoken of, therefore, as hypertonic stasis; and the influence of hypersensitiveness of the sphincter associated with the hypercholesterolæmia of pregnancy and arteriosclerosis in causing biliary stasis and so disposing to infection, cholecystitis, and gall-stones, is a very interesting possibility; it is suggested that the excess of cholesterol in the blood is the disposing factor to the hypervagotonia and so to persistent spasm of Oddi's sphincter. As spasm of the sphincter may cause biliary stasis and dilatation of the gall-bladder, it seems reasonable to believe that it may be responsible for the rare condition of cystic dilatation of the extrahepatic bile-ducts, and Prof. WILKIE compares the underlying want of neuromuscular coördination which leads to failure in relaxation of Oddi's sphincter, or achalazia, with that responsible for cardiaspasm, idiopathic dilatation of the colon, congenital pyloric stenosis, and some forms of hydronephrosis. He also suggests that persistent spasm of Oddi's sphincter is the cause of the pains and transient jaundice occasionally seen after cholecystectomy, which naturally suggest an overlooked stone in the common duct, but in which a second operation reveals nothing save a dilated common bile-duct. This possibility of achalazia of the lower end of the common bile-duct after removal of the gall-bladder recalls Meltzer's law of contrary innervation of the gall-bladder and Oddi's sphincter—namely, that Oddi's sphincter remains in tonic contraction until the gall-bladder contracts, when it relaxes. It might, indeed, be logically imagined that after removal of the gall-bladder Oddi's sphincter would fail to relax; the reverse, however, usually occurs, for at first at any rate, and sometimes perpetually, there is biliary incompetence and the bile flows continuously into the duodenum. It would be interesting to know what factors govern the behaviour of Oddi's sphincter after cholecystectomy. The occasional onset of acute hæmorrhagic pancreatitis in biliary disease is well established; in 1901 HALSTED and OPIE put forward the attractive explanation that this accident was due to retrojection of bile into Wirsung's duct of the pancreas as a result of impaction of a small calculus in the biliary papilla; the presence of a gall-stone in the biliary papilla is by no means constant in acute hæmorrhagic pancreatitis, and ARCHIBALD'S suggestion, modified by MANN and GIORDANO, of spasm of the terminal or papillary portion of Oddi's sphincter, which would throw the biliary and pancreatic ducts into one, is quoted by Prof. WILKIE.

In addition to biliary stasis due to spasm of Oddi's sphincter there is the hypotonic gall-bladder met with in asthenic visceroptosis and, indeed, part of that condition; the symptoms suggest gall-bladder disease, but laparotomy shows a flabby dilated gall-bladder without calculi and little if any evidence of inflammation; as this negative finding may result in nothing further being done, it is important to note that removal of the gall-bladder has been followed by freedom from symptoms. It is generally agreed that the gall-bladder, unlike the urinary bladder, never becomes entirely empty; in fact the only occasion on which Prof. WILKIE has encountered an empty gall-bladder was in a case with obstruction of both hepatic ducts at their junction to form the common hepatic duct (Fig. IV.). In the past the occurrence of "white"

bile in the dilated ducts of some jaundiced patients with obstruction of the bile-ducts was ascribed to failure of the liver to secrete bile-pigment, and, indeed, the explanation why in some instances, as in malignant disease of the head of the pancreas, the bile was tarry and deep in colour, whereas in others, such as gall-stone obstruction, it was white, has only recently been provided by PEYTON ROUS and MCMASTER. They find that it depends on the condition of the gall-bladder, a healthy one concentrating the bile to one-tenth of its volume, whereas a diseased gall-bladder cannot do so; this is illustrated on the accompanying coloured plate, and it is pointed out that the condition of the bile can be shown by cholecystography, the dark concentrated bile casting a definite shadow due to the contained sodium tetraiodophenolphthalein, whereas the white bile fails to stop the X rays. Experiments on cats, however, in Prof. WILKIE'S hands have shown that there is a limit to this concentration and that ligature of the common duct may be followed by distension of the whole biliary system, including the healthy gall-bladder, with white bile; this observation raises the obvious question as to the explanation of the divergence from ROUS and MCMASTER'S results. A clear account summarising the present state of knowledge about the aseptic formation of the cholesterol "solitaire" and the septic formation of multiple calculi is given, and the way in which an aseptic cholesterol calculus, which often remains "silent" for years, may nevertheless obstruct the exist from the gall-bladder, favour infection and the formation of "a combination" calculus and numerous secondary septic calculi, is illustrated (Fig. VI.). This process is of practical importance, for in acute obstructive cholecystitis the surgeon should not be content to evacuate pus and numerous small calculi, but must also look for and remove the ovoid combination stone from the neck of the gall-bladder or the cystic duct.

SCHOOL CLINICS.

TOWARDS the end of last century the public conscience was more or less awakened to the unsatisfactory condition of elementary school-children, and since that time, as Sir HUMPHRY ROLLESTON points out in the address which we publish on page 687, there has been a remarkable extension of medical activity. By the Education Act of 1907 local authorities were obliged to inspect their school population, and by that of 1918 they became responsible for the treatment of defects as well. The earlier clinics were no more than clearing-houses, the children being directed to the appropriate places for their treatment; but as the cases were followed up it soon became evident that facilities for dealing with common conditions were often quite inadequate. The available agencies for treatment were private practitioners, provident dispensaries, voluntary hospitals, and Poor-law institutions, but without reorganisation these could not possibly cope with the number and types of defect which inspection revealed. Many authorities evolved far-reaching schemes, and by 1910 the London County Council had made arrangements with seven hospitals for treating 12,700 children. Later on, with the help of local committees of practitioners, it became possible to start a series of treatment centres, whilst still making full use of hospital resources, and in 1925 the number of children treated in London was nearly a quarter of a million.

The new clinic at Birmingham, whilst important, is only one of many similar institutions being opened all over the country, and clearly these are going to be of very great importance in preventive medicine. The public health demands the care of children from conception to maturity; they have to be thought of in relation to heredity, home surroundings, school curriculum, school environment, hygiene, and diet. These considerations are ever behind maternity and child welfare schemes, school medical work, factory inspection, and panel or hospital practice—all of which are rapidly being coördinated to serve the one end without overlapping. As now constituted, school clinics meet the need for treatment and secure it for defects and diseases hitherto largely neglected. Regularity of attendance can be maintained, and there is increasing coöperation with local practitioners. So successful have their efforts been that "the modern tendency," to quote a recent book on school hygiene,[1] "is to increase the number of these centres rather than extend the scope of hospital work, experience showing that the treatment centres possess greater elasticity than the hospital and lend themselves in some respects more readily to the needs of the education authority."

More and more the clinic forms a link between the child, its home, its school, and the medical officer. The presence of parents and the visits of nurses and health visitors to the children's homes make it a social and educational agency of great value. The requirements of particular districts must needs vary. In the country it may be hard to arrange for the care of scattered populations, but there is scarcely any well-planned scheme of treatment that will not fully repay the money spent on it, and in some areas difficulties can be met by fitting up motor wagons for dental, aural, or ophthalmic work. At Nottingham an institution of ambitious design has recently been opened under the direction of Dr. E. M. WYCHE, and here, besides the usual facilities found in large clinics, there is an operating theatre for tonsils and adenoids, with two wards, and general and private rooms for a staff of clerks and ample accommodation for nurses and caretakers. The new building opened by Sir HUMPHRY ROLLESTON at Birmingham, besides having admirable facilities for medical, dental, and special treatment, is also to be used for lantern and cinematograph lectures and for public meetings designed to quicken interest in preventive hygiene. Such public interest is exceedingly desirable, and, thanks to the work done by medical officers, it is steadily being aroused.

RIVERS POLLUTION.

AT the end of August the Standing Committee on River Pollution presented its third report to the Minister of Agriculture and Fisheries. It was a gloomy document. The Committee stated that the deeper it delved into the problem of pollution the more complex that problem appeared. After commenting on the general difficulty of reconciling the various interests of industry, water-supply, water power, fisheries, and local amenities, the report deplored the lack of scientific knowledge necessary to devise methods of dealing with particular effluents. Beet sugar manufacture, it appears, has introduced a fresh danger. This new industry requires large quantities of water; factories are consequently erected close to streams, and the factory effluents cause injury to stream life either by direct poisoning or by developing a mass of sewage fungus or by both means. The Committee recalled the recommendation of the Royal Commission on Sewage Disposal, advocating the creation of some central authority to hold the scales evenly between the

[1] Crowley's Hygiene of School Life, sixth edition, p. 186.

various interests involved and the establishment under such authority of a sufficient technical staff to find answers to the scientific questions which arise. The Committee's report solemnly warned the country that the longer it postpones a comprehensive effort to tackle the problems of pollution the more difficult and expensive will be the task and the greater the risk of failure. The same topic occupied the attention of the National Association of Fishery Boards at its annual meeting this year when the Ministry of Agriculture and Fisheries was asked for any available information. The Ministry's representative discussed the possibility of a general survey of the rivers of the country, but admitted that rivers were being destroyed by pollution meanwhile. He was unable to report any progress in the purification of a number of specified effluents; he announced that experiments proved that all road dressings containing tar were injurious to fish, and he spoke a little vaguely of the need of creating such a public opinion that something would have to be done. Of efforts in this direction much may be hoped of the recently founded Pure Rivers Society, which intends to educate the public, to collect practical, scientific, and legal information, and to band together all the different classes of the community which suffer from river pollution. The Society laments the official admission that pollution, instead of being checked, is making progress, and it criticises the weakness of the law.

The inadequacy of the law, however, seems due not so much to the failure of Parliament and the judges to give a remedy as to the difficulty of stimulating the proper persons and bodies to ask that the remedy be applied. Quite apart from any statutory prohibition, all interference with water flowing in a defined channel which injures its purity or volume is in England a nuisance at common law. Aggrieved persons can obtain damages and an injunction to restrain continuance; action can also be taken on behalf of the public, and, as pollution to the danger of health is an indictable nuisance, the Attorney-General can be moved to institute a prosecution. But although the law-courts have readily upheld the common law right to unpolluted water, the right could be defeated formerly by Act of Parliament or prescription. If the pollution had gone on long enough the offender acquired a prescriptive right to continue his offence. The acquisition of this prescriptive right, to which we shall presently return, carried with it no right to increase the pollution; but, with the gradual increase of populations and of manufacturing activity, it proved a serious limitation on the right to pure water. Fifty years ago Parliament intervened. The Public Health Act of 1875 made it the duty of local authorities to protect water-courses from sewage pollution. In the following year came the first Rivers Pollution Prevention Act. The 1876 Act, which piously recites that it was "expedient to make further provision for the prevention of the pollution of rivers and in particular to prevent the establishment of new sources of pollution," began by making it an offence to put solid refuse, waste, or any putrid solid matter into a stream so as to interfere with its due flow or to pollute its waters. It went on to prohibit the drainage into streams of solid or liquid sewage matter and of poisonous, noxious, or polluting liquids from factories or mines. But just as the railway and steamship interests have fought recently for exemption from the proposed legislation as to smoke abatement, so in 1876 the mining and manufacturing interests procured important limitations on the right to institute proceedings in respect of river pollution. In so far as it was left to sanitary authorities to take action, these bodies often combined the dual rôles of poacher and gamekeeper, and were themselves the worst offenders. In 1888, when county councils were first formed, the county council was authorised to enforce the Rivers Pollution Act. In 1893 a second Rivers Pollution Prevention Act added that where any sewage matter falls, flows, or is carried into a stream after passing through a channel which is vested in a sanitary authority, the sanitary authority shall be "deemed to knowingly permit the sewage matter so to fall, flow, or be carried." More recently the Salmon and Freshwater Fisheries Act of 1923 authorised fishery boards to take action to enforce the Rivers Pollution Acts and to aid any person or body in this connexion. Though Section 8 was retrograde in favouring existing pollution and in limiting the general right to prosecute cases of discharge of noxious trade effluents, the 1923 Act repeated previous prohibitions of the poisoning of fishing rivers. But this sequence of statutes has failed to effect its purpose. Litigation costs money, and vested interests are strong; neither individuals nor groups of ratepayers are ready to fight the large and wealthy corporations which are often the offenders. On the whole the landowner makes the best plaintiff because the law-courts have always respected his common law right to pure water; the local authorities have more scope when it is a question of enforcing statutory prohibitions. A few years ago a most hopeful success was won when the Court of Chancery allowed the common law right to be reinforced by the statutory prohibition. This was the decision in Hulley *v.* Silversprings Bleaching Co., [1922] 2 Ch. 268. A riparian owner had brought an action against a bleaching and dyeing company upstream to restrain it from continuing to pollute his water. The main defence was a plea of a prescriptive right to pollute, enjoyed for 20 years as of right; alternatively a right was alleged by virtue of a lost grant. Mr. Justice EVE upon this point declared that the prescriptive easement claimed was contrary to the Rivers Pollution Prevention Act of 1876, Section 4 of which made this pollution a criminal offence. "A lost grant cannot be presumed where such a grant would have been in contravention of a statute; and, as title by prescription is founded upon the presumption of a grant, if no grant could lawfully have been made, no presumption of the kind can arise and the defendants' claim must fail." This important decision went far to kill the defence of prescriptive right, and it is surprising that it has not been more freely turned to account.

We noted last year that in his annual report to the Metropolitan Water Board Sir ALEXANDER HOUSTON still regarded the Thames as a potential salmon river. It is well aerated at Hampton at all seasons of the year; only in the lower reaches is there the deficiency of oxygen which is fatal to fish life. Sir ALEXANDER HOUSTON's report for the present year tells something of the romance of the New River, a 300-year old stream gently flowing into the heart of London, for many miles in an uncovered channel, its water (save for chlorination) almost untreated and used to its utmost drop for drinking. Sir HUGH MIDDLETON, the famous author of this remarkable enterprise, found at first—as is stated in the charter granted to the New River Company in 1619—"the success thereof doubtful and the oppositions made against it very strong." Some of his persistence is required to-day. Two famous southern rivers, the Test and the Kennet, have been successfully protected from fouling, but it has been said that almost all the other rivers in Great Britain are illegally polluted. The fisherman's is not the only point of view, of course, but the ideal of a tidal Thames, purified to allow the ascent of the salmon and the descent of the smolts is one which not only fishermen hope to see realised within their lifetime. The state of the law must be investigated and improved. Public opinion must be organised against the contamination of rivers so that prosecutions can be undertaken with a prospect of substantial penalties, and so that industrial concerns can be driven to find means of purifying their noxious effluents. Important companies have, in deference to popular feeling, abandoned the desecration of local amenities by advertisements which offend the eye. They must be induced to feel the fouling of streams and rivers a far more serious offence. Meanwhile the Ministries of Health and of Fisheries must somehow mobilise research workers to find practical and not too expensive methods of treating effluents which at present defy scientific purification. Even in the present state of scientific knowledge there is constant pollution because towns neglect or misunderstand the expensive

and elaborate provision which their sewage works already contain. The Royal Commission on Sewage Disposal, whose recommendations seem to have been entirely ignored, reported that the purification of trade effluents by the local authority is practicable "in the great majority of cases."

Annotations.

"Ne quid nimis."

SIR JOHN MACALISTER.

Sir John MacAlister, alike by his strenuous work and his sympathetic personality, so impressed himself upon the regard and affection of a very large range of medical men that it has been a natural idea on the part of his family to compile for private issue a small volume in his memory. The volume is not, and is not intended to be, a biography, though the history of his life emerges from the large assortment of obituary notices published in the general and medical press and the library periodicals which form the bulk of the compilation. These notices are supplemented by a collection of resolutions from various public, medical, and literary associations, and by extracts, signed and unsigned, from numerous letters of sympathy of a personal character. The little volume, which contains several excellent portraits, will fill exactly the purpose which the family had in mind. It is a tribute from all sorts and conditions of men who were brought into contact with John MacAlister's work, leisure, and aspirations which his friends will be glad to possess.

SUBMAXILLARY SALIVARY CALCULUS.

THE removal of six faceted stones from the submaxillary gland, recorded by Mr. W. I. Daggett in our last issue, is an interesting addition to the literature of salivary calculi. This form of stone, which Hamilton Bailey aptly calls[1] "the Cinderella of the stones to which human secretory and excretory mechanisms are heir," is not uncommon, though the relatively minor disabilities to which it gives rise in comparison with other varieties of calculus have detracted from its surgical importance. Yet both in regard to size and to the remarkable way in which the six stones fitted one another Mr. Daggett's case is unusual. By a striking coincidence Sir James Berry, in the *British Journal of Surgery* for April, has recorded a case of submaxillary calculus which had undergone spontaneous fracture into three pieces with eburnation of the broken surfaces. The question naturally arises whether this case might also be looked upon as one of three calculi with faceted surfaces, or, conversely, whether Mr. Daggett's example might not be one of spontaneous fracture with eburnation of the surfaces. The answer is not easy. If it is difficult to imagine spontaneous fracture of a calculus in the gland, unless there was some definite history of injury which might render it possible, it is also difficult to envisage the conditions which could lead to the formation of several stones in different parts of the gland, with intervening gland tissue which gradually became destroyed, as Mr. Daggett suggests. Until we know the actual cause of the formation of calculus in the salivary duct or gland such aberrations of the usual type of stone as this must remain pathological curiosities. It is noteworthy that in Mr. Daggett's case there was a history of 18 years' development, while in Sir James Berry's case there was evidence to show that the condition had been developing over a period of 29 years. The absence of symptoms in the latter case is in striking contrast to the former in which the periodic swelling and pain with inflammatory changes were in accordance with the text-book description of the condition.

[1] Brit. Jour. Surg., October, 1924.

TRYPARSAMIDE IN THE TREATMENT OF NEUROSYPHILIS.

THE new arsenical compound tryparsamide has now been tried for the treatment of syphilis, and particularly neurosyphilis, in many countries. Observations have been published by workers in France, Germany, and the United States, and we print this week a detailed report by Dr. J. D. Silverston to the Medical Research Council of his experiences with the new treatment at the Whittingham Mental Hospital, Preston, and an abstract of a report by Dr. M. Brown and Dr. A. R. Martin to the Glasgow District Board of Control. Extensive trials made at the Mayo Clinic, Rochester, U.S.A., were put on record by J. H. Stokes and L. F. X. Wilhelm two years ago, and P. A. O'Leary and Becker, who continued their work, were able in March last to include observations on 207 patients, of whom 113 had received at least two courses of tryparsamide each consisting of ten injections. In their 50 cases of early general paralysis, treated with the new drug with the addition of mercury or bismuth, 12 per cent. showed definite remissions—a figure, they point out, not appreciably higher than the proportion of spontaneous remissions; 66 per cent. of their patients were better in one or more ways, some of them only subjectively. Improvement in the state of the blood and cerebro-spinal fluid as judged by specific reactions occurred in 32 per cent., and in 20 per cent. the spinal fluid reactions became normal. These serological effects were more marked the more prolonged the treatment, and in a number of cases tryparsamide produced definite serological improvement when other preparations had failed to do so. In fact, it seemed that tryparsamide was beneficial chiefly as a "finishing-off" remedy after courses of treatment with other drugs, for when it was given alone to patients who had had no previous antisyphilitic treatment only five out of 35 showed any response. O'Leary and Becker group in a separate class 15 cases of G.P.I. without paralytic symptoms; in one of these patients the cerebro-spinal fluid became negative to specific tests, but in the others there was little improvement except such as resulted from the general tonic effect of the drug. In cases of tabes dorsalis the results were disappointing; the promise of relief in gastric crises held out by certain observations of Stokes and Wilhelm was not fulfilled. In 14 cases of disseminated sclerosis and of combined sclerosis the new treatment was without benefit. Dr. Silverston has not so many cases to record, but his observations include patients in whom tryparsamide was used as an adjunct to treatment by malaria, and he is able to compare groups treated by tryparsamide without and with fever treatment. The former comprised eight cases of G.P.I., and of these two, which were early cases, showed complete remission. In one of them after 20 injections the Wassermann reaction became negative in the blood and cerebro-spinal fluid and the colloidal gold reaction became normal, but in the other the Wassermann reaction remained positive in both fluids and the colloidal gold reaction was little changed. Of the seven cases treated with tryparsamide after malaria two again were early cases, and both showed clinically complete remission of the disease, while one more advanced case improved. Neither the clinical nor the serological results are considered by Dr. Silverston any better than those obtained by malaria alone. With more advanced cases of the disease the treatment presented difficulties and was disappointing. Of the 13 cases of neurosyphilis treated at the Gartloch Mental Hospital by Dr. Brown and Dr. Martin under laboratory control with a full course of tryparsamide alone, all except two benefited in some degree; five steady and useful workers were able to return to their homes. Three other advanced cases died during the treatment but no toxic disturbances were noted and gain in weight was the rule. At the Pretoria Mental Hospital, Dr. A. Pijper and Dr. E. D. Russell have found [1] a combination of

[1] South African Medical Record, April 24th, 1926.

tryparsamide and mercuric salicylate effective in cases of early paresis and tabes.

The use of tryparsamide is not free from untoward effects, to which several writers have called attention, the most serious of these being visual impairment, transient or permanent. It is often difficult, however, to decide in what degree this impairment is to be attributed to the syphilis and in what degree to the drug. O'Leary and Becker recorded visual defects during treatment in 10·6 per cent. of their patients with objective findings in the fundi in 4·3 per cent. and persistent functional impairment in more than half of these. Their experience is that even subjective defects, without apparent changes in the fundi, are not to be lightly regarded. In Dr. Silverston's cases four patients out of a total of 20 complained of dimness of vision, and in one of them a slight defect became permanent. It would appear from comparison of the reports up to date that for the majority of cases tryparsamide has no proved advantage over the more tried arsenical compounds. Tryparsamide injections are available for those not suited to the risks of malarial treatment, but the visual complications offer a hazard which it has not been possible to obviate.

DULL AND BACKWARD CHILDREN.

EDUCATIONAL authorities in different parts of the country are showing themselves alive to the importance of the problem of dull and backward children, as distinct from that of mentally defective children, for whom legislative provision has been made, and for whom also educational opportunities are in many areas available. The County Borough of Huddersfield has issued an account of an inquiry by its medical officer, Dr. S. G. Moore, into this problem. He took as the subjects of his inquiry all children who were one or more classes behind others of their age, constituting, as he found, 3·14 per cent. of the total number of children in the schools. This figure is considerably below the 10 per cent. suggested by estimates and actual inquiries in other areas, and it is probable that a large number of backward children have been missed, who, owing to the prevalence of the system of promotion by age, irrespective of merit, are actually working in the classes of the average children of their own age. The object of the investigation was to determine how far backwardness was due to inherent dullness, and how far to other causes—physical defect or disease, irregular attendance at school, faulty grading, mental attitudes to school and teacher. Dr. Moore used the Stanford-Binet scale of intelligence tests, and his results are somewhat startling, for they show, taking an intelligence quotient of 90 as a lower limit of normality, that, out of 288 children examined, 184 were either normal or actually superior in intelligence. It is generally recognised that among these children educational deficiency is greater than intelligence defect, but Dr. Moore's figures are so striking as to suggest either some flaw in our educational methods or in our means of testing intelligence. Dr. Moore employed a further test, apparently designed by himself, to try "the power of the child to recognise incongruities and the proportional relationships between two or more related things." He does not state the nature of the test, but if it has not been itself previously tested and standardised by trial upon normal children, it is not convenient to make it the basis of a conclusion so contrary to general experience as he does—viz., that out of 288 backward children examined, the backwardness of only 6 was accounted for by inherent mental dullness. The others are explained by either personal bodily condition or environment, but it is pardonable to doubt whether defective eyesight, for instance, unless of high degree, is in itself ever a potent cause of backwardness, or whether a general condition of ill-health, such as malnutrition, is so much a cause of backwardness as it is along with backwardness a result of an inherently feeble stock, physically and mentally. In some quarters there is a tendency to exaggerate the rôle of heredity. Dr. Moore tends to the other extreme, and as far as can be seen from the data in this report, on inadequate grounds. His protest against too early labelling of children as "inferior" or "deficient" will elicit much sympathy, but that is scarcely sufficient reason for denying to these children the benefit of the special teaching they require. The less backward cases might, as he suggests, be dealt with by correct grading in the standards, but the needs of the more severe cases, as of the feeble-minded, can only be adequately met by classes and schools with special curricula.

ALIMENTARY HYPERGLYCÆMIA.

IN our issue of Sept. 18th we published some interesting observations by Dr. C. D. Shapland on the effect of the ingestion of cane sugar on the blood. The subject is of such importance that all new observations are worthy of record and close study. The alimentary glycosuric test put forward in 1885 by Corlat for a long time held the field as a means of investigating hepatic glycogenesis, but has been superseded by the test of alimentary glycæmia brought into notice in 1908 by A. Gilbert and A. Baudoin. Further experiments have lately been published[1] by Dr. P. Introzzi, of Pavia, which have brought some interesting facts to light and supplement those of Cammidge, H. Gray, and others. The method employed was to give the patient fasting in the morning from 40 to 100 g. of sugar (glucose, lævulose, or lactose) dissolved in 100–200 c.cm. of water, having previously taken some blood from the finger for examination. Further samples of blood are taken regularly at half-hourly intervals for four hours, the patient being kept in bed and without food. It is thus possible to obtain a curve indicative of the glycæmic reaction composed of an ascending phase, a descending phase, and sometimes of a plateau placed between these two. The typical curve which is observed in a healthy individual shows that the saccharine content of the blood, temporarily modified by the administration of even a small quantity of a monosaccharide, promptly regains equilibrium after a phase of rapid ascent, reaching a moderate height always in relation to the amount of sugar taken after 30–40 minutes. This is preceded by a phase of descent also rapid, followed, however, by a brief phase of hypoglycæmia, after which the saccharine content promptly returns to its primary value. The total duration of the reaction should not exceed two hours, in which time the glyco-regulating mechanism, if it is functioning normally, should rapidly free the organism, or rather the blood, from an invasion of sugar which would keep it in a state which is not normal. If the phase of ascent in the curve is prolonged to excess, if the summit is too high or with a plateau, if the descending phase is too slow or with a phase of hypoglycæmia out of proportion to the hyperglycæmia, if there are marked oscillations or the total duration of the reaction is unduly long, that is evidence of some insufficiency in the glyco-regulating mechanism. In the cases examined by Dr. Introzzi were included affections of the liver, of the thyroid, and mild diabetes, and they all showed in a more or less striking manner, when submitted to the test of hyperglycæmia, a deviation from the normal carbohydrate metabolism. In liver disease in general the glycæmic content while fasting was not above normal (1 per 1000), except in one case of large syphilitic liver with splenomegaly and one of chronic jaundice and ascites from a tumour of the head of the pancreas, in both of which the content was 1·36 per 1000. In affections of the thyroid (Basedow's disease and simple goitre), the values found were not above normal. Thus a normal content during fasting does not exclude a potentially compromised glyco-regulating mechanism, while marked deviations from normal are always found by the

[1] I Problemi della Nutrizione. Giornale di Fisiopatologia di Clinica e di Dietetica. Rome. February–May, 1925.

test of induced hyperglycæmia. Usually when the glycæmic curve is changed by glucose, it undergoes the same modification with lactose and lævulose, but the oscillations caused by the latter monosaccharide conform more to the normal. The renal permeability was found to vary, in one case reaching 2·30 per 1000, without any glycosuria ensuing; the threshold of renal permeability for lævulose, however, was found to be lower than for glucose and lactose. The study of glycæmic curves may be of considerable importance in morbid conditions characterised by hepatic lesions as a possible means of estimating the degree of functional alteration of the organ, and these observations of Dr. Introzzi are a valuable contribution.

THE ADULTERATION OF FOOD.

Mr. G. D. Elsdon, Lancashire county analyst and formerly Salford Borough analyst, has published some interesting notes on food adulteration as an addendum to his report for 1925 to the Salford Health Committee. The series of Acts now regulating the purity of food began with the Food and Drugs Act of 1875, which, with modifications and supplements, is still the main provision against sophistication. Local authorities taking proceedings under this Act are apt to find it hard to prove their cases; on questions of fact the evidence of inspectors or analysts is usually accepted, but questions of trade uses and public requirements are frequently brought forward by the defence, which often has large sums of money placed at its disposal by commercial organisations. The subject of "trade custom," says Mr. Elsdon, is one of great urgency and importance, since it recurs again and again where manufacturers are placed on their defence by charges of adulteration. Many interesting examples of prevalent practices are given in the report. The mixing of a small quantity of butter with margarine does not affect the flavour, Mr. Elsdon considers, and is only done so that the public may be encouraged to buy some particular article and that the use of the word "butter" may be justified. As to jams and marmalade, some half dozen of the larger firms and a few of the smaller ones do produce a genuine article, but, generally speaking, fruit pulp, fruit substitutes, glucose, pectin, gelatin, agar-agar, and artificial dyes are more in favour with the "preserve manufacturer" than fruit itself. In a recent correspondence in the *Times* it was suggested that so-called improvement by the admixture of "a little pure fruit juice" is justifiable because jam made from certain fruits, such as strawberries, is too fluid for the popular taste without some jellifying addition; but there is no doubt that often this specious phrase covers deplorable adulteration. Of flour, Mr. Elsdon says that "it is no exaggeration to say that the present position of the flour-milling industry in England should not be tolerated in any civilised country, whilst at the same time it may be admitted that only in such a country would adulteration of this type be attempted." He remarks that the use of alum to produce a white loaf is nowadays not at all common, though ozone and chlorine are being used to some extent. One form of adulteration which is now largely if not universally practised is the addition of so-called improvers to flour. An improver may be simply a substance to lighten the colour of the flour or of the finished loaf, or it may be used to produce more loaves per sack, by making the dough absorb more water. At first calcium phosphate was the substance used as an improver, but, Mr. Elsdon states, "more objectionable still are the newer forms of adulterant. A very large percentage of flours now contain persulphates, peroxides, and other compounds, which are allied to the so-called oxygen compounds used in the modern laundry. Their use should be prohibited. It can only be repeated that the bulk of the flour sold in this country to-day is seriously adulterated to the great detriment of the purchasing public." Mr. Elsdon says that probably no kind of food is more adulterated than the so-called temperance drinks, fruit cordials, and similar preparations, whilst his comments on medicated wines will confirm the opinion of those who prefer to take their wine, their meat juice, and their medicine out of separate glasses.

CONGENITAL OCCLUSION OF POSTERIOR NARES.

CONGENITAL occlusion of the posterior nares is a condition which presents itself every now and then to the rhinologist. Outside its clinical bearing and its associated relations little is definitely known about it; only two examples of the true affection seem to have come to autopsy, and only one of these has been treated by maceration. Prof. J. E. Frazer, in opening a discussion at the Post-Graduate Hostel in the Imperial Hotel on Sept. 21st, dealt shortly with the probable origin of the malformation in the course of an address on the Clinical Bearings of Embryology. The nasal fossæ, as he pointed out, during development increase their height in an upward and backward direction, and not downwards; in this growth the primitive posterior nares lengthen upwards, keeping pace with the increasing height of the fossæ, so that they finally extend from just above the premaxillary level to that of the highest part of the roof of the mouth cavity. The bucco-nasal membrane is stretched and ruptured in the growth. The lower and greater portions of these elongated openings are then closed by the palate folds, the unclosed portions forming the definitive choanæ. As the fossæ grow upward in the mesodermal bed, that part of the tissue which remains between them forms the septum, and the posterior edge of this is the part of the roof of the mouth left between the two openings, to which the palate folds have attached themselves. The presence of congenital stenosis or occlusion is best explained, in Prof. Frazer's view, by assuming that the upgrowth of the posterior opening on the side affected has not taken place in keeping with that of the fossa itself. The part of the mouth-roof concerned is formed of visceral mesoderm, derived from the maxillary process and forming a layer on the buccal surface of the paraxial mesoderm in which the fossa is embedded. Normally this visceral mesodermal layer is split by the ascending opening, and is deposited on the septum and on the outer wall of the opening; the vomer is formed in this mesoderm where it covers the back of the septum. When the layer is not opened out, but remains as a postero-inferior wall to the fossa, its mesoderm contains potential bone, belonging to the vomerine system, spread out within it. Bone is therefore to be expected in the formation, continuous with the front and upper part of the vomer. When the palate fold closes across this plate it is necessarily fairly closely apposed to it, but is only attached near the middle line. After birth, however, the height of the vomer is increased by addition to its lower and back part, so that the palatine level is pushed away somewhat from the plane of the obstructing plate, which, with reference to the palate, can now be described as inclining downwards and forwards. It may or may not possess an opening in its lower and front part, representing the original and very slightly enlarged primitive naris, from which the bucco-nasal membrane has disappeared. Sir James Dundas-Grant, who was in the chair during the discussion, spoke on this subject, and confirmed the existence of bone, which is, we believe, usually present in these formations.

BARON LARREY.

IN the *Military Surgeon* for September Captain James D. Edgar, late of the United States Army, gives an account of Dominique Jean Larrey, who was the first Napoleon's principal medical officer, and initiated modern methods of handling and evacuating war casualties. Before his time the wounded were indeed collected and dressed at once on the field, but the ambulances, heavy vehicles with 40 horses, were left behind before battle, and only reached the front after one or two days, when further time was lost

in the journey back to the surgeons and hospitals. Larrey saw that this delay meant death to many. Using as his pattern the light guns or *artillerie volante*, he devised *ambulances volantes*, small wagons with large springs and stuffed mattresses, drawn by two horses (for two lying patients or four sitting) or four horses (four lying or eight sitting). These could come up to the firing-line, and even accompany cavalry, and they carried medical staff and dressings to the line. The wounded were now collected, dressed, and taken at once in ambulances to the surgeon at what we would call the main dressing station; they were operated on very early, and then conveyed quickly to hospitals three to ten miles in the rear, where they were all in bed within 24 hours, even after the great battle of Austerlitz. There was less suffering, he discovered, in rapid evacuation than in confinement in crowded hospitals. Larrey also improved treatment, recommending that the skin round wounds should be kept very clean, that salt and chlorinated soda solutions should be used instead of ointments in the treatment of wounds, and that dressings should be done as rarely as possible. His chief insistence was on the urgency of amputation where it was required, and it is now clear why this promptness would prevent tetanus, as he asserted. Resections, he considered, should be done instead of amputations wherever possible. He found blood-letting uniformly disastrous, and blisters of no avail—the raw surface, moreover, being liable to moist gangrene—and insisted, Hippocrates notwithstanding, that wounded men require a generous diet. Larrey was much beloved by the soldiers, and treated French and enemy wounded equally; it is said that this practice saved him when he was captured by the Germans after Waterloo, and sentenced to be shot. Recognised by a German doctor, he was taken to headquarters and released by Blücher whose wounded son he once had saved. After Austerlitz Napoleon had made him Baron Larrey, giving him a pension of £200 a year, and after Waterloo he continued to be much respected, being made surgeon of the Royal Guard and having his pension restored. When he visited London in 1826 he was cordially received by the English medical profession. At the age of 76 he inspected the French hospitals in Algeria, but contracted pneumonia on his return to France, and died at Lyons in 1842. He was buried in Père la Chaise in Paris, and his name is on the Arc de Triomphe. Napoleon, in his will, left him 100,000 francs, as "the most virtuous man I have ever known," and in French, as Captain Edgar points out, the word "virtuous" means more than in English, for it conveys the idea of bravery and utility to the State. In the old days Baron Larrey used to be quoted as proof that France recognised more generously than England the services of her doctors, but he had a specially great opportunity and used it magnificently.

THE GARDENS OF MADEIRA.[1]

IN an interesting little publication, Dr. Michael Grabham assumes the mentality of the British tourist as receptive and intelligent even if uninstructed, and proceeds in friendly vein to identify for him the more prominent features in the Madeira flora, if with special reference to gardens still with wide notice of general botany. The book is certainly an invitation at this period of the year, for those who can accomplish such charming plans, to sojourn in Madeira round about Christmas time. When shortening days here give a foreboding of the approach of winter many who know the rigors ahead, with which they can cope only miserably, will feel tempted to resort to an island where "Spring is perpetual and Summer occurs in alien months." Dr. Grabham reminds those in charge of such patients that the transit from winter to summer conditions can now be made with complete comfort in less than three and a half days, and we learn that the visitor arriving at Christmas will find flowers which we associate with spring and early summer blooming in full profusion and occurring promiscuously with the numerous conspicuous and fragrant plants indigenous to Madeira, which in this country decorate glass-houses or make but a transient appearance in the open. Mid-winter vegetables continue their autumnal yield through December and January, and green peas and cauliflowers have become abundant. Speaking from the botanical point of view, he notices that in general character the flora of Madeira confirms the rule relating to an insular collection, showing many orders with one genus only, and genera with a solitary species. Analysis of the comprehensive flora of the island has been due to the descriptive and identifying work of British botanists, and a comment on the profusion of specimens as well as upon the easy circumstances of growth and reproduction is furnished by a semi-apologetic phrase in which Dr. Grabham confesses that his plan for taking the garden flowers in monthly sequence has been baffled by "the exercise of a perverse exuberance in the genera, and a tendency to transgress all limits and break forth anew in unseasonable revivals."

[1] The Garden Interests of Madeira. By Michael Comport Grabham, M.D., LL.D., Fellow of the Royal College of Physicians, London: Printed by William Clowes and Sons, Limited. 1926. 5s.

CHINA MEDICAL ASSOCIATION.

IN spite of the political situation the China Medical Association held its eighteenth Biennial Conference at the beginning of this month in Peking. Since the last of these conferences the Association has dropped the word "Missionary" from its title so as to become more representative of medical interests in China, and the broadened basis has brought an increase of membership. Those who administer its affairs are doing good work under considerable difficulties, and during the past year or so these have been increased by the enforced invaliding from China of the President and Vice-President of the Association and the Editor of its journal. Missionaries seldom have large financial resources and the Association is without any endowment fund. It would hardly have been possible to carry on the work at all but for assistance from the China Medical Board of the Rockefeller Foundation, which during the past five years has contributed 25,000 dollars towards its expenses. Unfortunately, the period of this grant now comes to an end, but the successful record of the Association's work should strongly recommend renewal of the subsidy. Even the précis of papers read at the Conference make it obvious that really valuable work is being done in various parts of China by members of the Association, and the programme shows that they have an efficient organisation; the *China Medical Journal*, which records their research and opinions, has become familiar throughout the world. At the suggestion of the Association the various medical societies of China have formed a joint council which is working for public health, and the courageous way in which the immense sanitary problems of that country are thus being faced makes it reasonable to hope for important if gradual reform.

ON SUSPICION OF RABIES.

OUR medico-legal correspondent on page 724 tells of a dog which was clubbed to death a fortnight ago at Balham on a suspicion of rabies and he queries whether police officers are properly instructed to deal with such an occasion. The larger question arises whether it is now reasonable for anyone in this country to suspect an animal of having rabies. With the exception of Australia this infectious disorder of animals is to be found in all parts of the world, although, as we are reminded in the most recent monograph[1] on the subject, the number of cases

[1] Lyssa bei Mensch und Tier. By Prof. Dr. R. Kraus, Dr. med. vet. F. Gerlach, and Dr. F. Schweinburg. Berlin and Vienna: Urban and Schwarzenberg. Pp. 464. M.30.

has greatly diminished in civilised countries in comparison with earlier times when epidemics were frequent. The Netherlands have, in fact, recently become quite free. Great Britain in 1895 had to record more than 600 cases in 30 counties, and it was only the quarantine for which the late Lord Long was so cruelly abused which rid us of an anxiety ever present in countries where dogs and human beings live in close proximity. From 1903 on Great Britain was free from rabies, and the relief would have remained complete had it not been for the thoughtless or criminal evasion of quarantine regulations by those who reached this island by sea or air. In 1918, as the result of an outbreak in Devon and Cornwall, introduced by aeroplanes reaching Plymouth, 30 persons were bitten by dogs ascertained to be rabid, and in the following two years 150 cases were notified from 14 counties and 33 from 9 counties, so that the Ministry of Health felt itself obliged to set up a number of centres at which Pasteur treatment could be initiated without delay. In the House of Commons at that time Sir A. Griffith-Boscawen remarked that dogs suffering from rabies had been known to wander great distances from their homes, although the farthest recent excursion was one of 50 miles. The incubation period in one case was as long as seven and a half months, although the disease did not occur in any dog following release from its six-month quarantine, and the Ministry of Agriculture then and since was satisfied that existing regulations are adequate. Happily, since 1921 this country has remained completely free from imported rabies, and while the smuggling of dogs must still be regarded as a conceivable possibility, the risk of reintroduction of the disease should be very small indeed.

WHAT IS A SAUSAGE?

THE answer of the Edinburgh city analyst, Mr. A. Scott Dodd, to this conundrum is "a bag of mystery." In examining 50 samples of sausages made in various parts of the country Mr. Dodd found that the moisture varied from 31·2 to 58·2 per cent.; the fat from 7·0 to 42·9 per cent.; the starch, flavouring, &c., from 5·3 to 33·7 per cent.; the proteids from 5·6 to 12·9 per cent., and the meat from 29·6 to 80 per cent. During the meatless days of 1918 sausages were included in the Meat Rationing Order as meat, and the minimum quantity of meat was fixed at 67 per cent. for first quality and 50 per cent. for second quality sausages. Even in this Order, which has now been revoked, no distinction was made between fat and lean meat. In view of the possibility of sausages being made mainly of fat and "starch filler," Mr. Dodd thinks it would be advisable to limit the permissible proportion of fat. It would be impossible to determine accurately the proportion of liver, gristle, &c., but the proportion of nutritious fat-free meat may be satisfactorily deduced from the percentage of proteid nitrogen present, as gristle does not contain much nitrogen. As the result of his experience Mr. Dodd suggests the following standards: (1) sausages to be of two grades only; (2) first-grade sausages (to be indicated by a band and conspicuously labelled) to contain not less than 67 per cent. of meat, second grade not less than 50 per cent.; (3) fat to be included as meat but not to exceed half the total meat present.

Dr. Charles J. Martin (Director of the Lister Institute and Professor of Experimental Pathology in the University of London) and Sir Frederick G. Hopkins (Professor of Biochemistry in the University of Cambridge) have been appointed members of the Medical Research Council to fill the vacancies caused respectively by the death of the late Lieut.-General Sir William B. Leishman and by the retirement of Prof. T. R. Elliott.

ALTHOUGH arrangements for the coming session of the Royal Society of Medicine are not yet complete, there is every indication that it will be very successful. Besides the ordinary meetings of the sections there will be one special discussion on Blood-letting by the the Society as a whole, and ten discussions held jointly by two or more sections. The first social evening will be held on Monday, Oct. 18th, when the guests will be received by the President, Sir James Berry, and Lady Berry, at 8.30 P.M., and at 9.30 P.M. Sir Arthur Keith will give a short address entitled John Bull: a Study in Anthropology, with lantern illustrations. It has been found necessary to make a rule that guests at these receptions, unless accompanied by a Fellow, Member, or an Associate of the Society, will need an invitation card; this may be obtained by Fellows, Members, or Associates on application to the Secretary of the Society. The annual dinner has been arranged for Thursday, Nov. 18th, at 8 P.M., at the Hotel Victoria, Northumberland-avenue. The Prime Minister has consented to be the Society's guest of honour if his duties permit.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Lts. H. M. Petty, F. M. B. Allen, and E. E. Henderson to be Surg. Lts.

ROYAL ARMY MEDICAL CORPS.

Col. E. T. Inkson retires on ret. pay.

Lt.-Col. C. C. Cumming to be Col., vice Col. E. T. Inkson, to ret. pay.

Maj. H. Harding to be Lt.-Col., vice Lt.-Col. C. C. Cumming.

The undermentioned Capts. to be Majs.: W. Bird (Prov.), A. C. Jebb, J. B. Minch, T. I. Dunn, C. Popham, A. J. O'B. O'Hanlon, W. G. Shakespeare (Prov.), O. C. Link (Prov.), E. E. Holden (Prov.), W. Campbell, W. H. Cornelius, R. G. Martyn (Prov.), N. Cameron (Prov.), C. F. Burton, S. D. Robertson, and R. H. Hodges (Prov.).

ROYAL ARMY RESERVE OF OFFICERS.

Lt.-Col. C. F. Wanhill, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

MILITIA.

Maj. R. Magill retires on reaching the age limit.

TERRITORIAL ARMY.

Capt. H. P. Gabb, from Active List, to be Capt.

Capt. J. S. Cooper having attained the age limit, is retd. and retains his rank.

Lt. C. C. Taffs is secd. under para. 137 T.A. Regulations.

W. H. M. Jones to be Lt.

ROYAL AIR FORCE.

Flying Officer D. Magrath is transferred to the Reserve, Class D.2.

INDIAN MEDICAL SERVICE.

Maj. C. R. O'Brien to be Lt.-Col.

Ephraim Benjamin to be Temp. Lt.

The King has approved the retirement of Lt.-Col. Padmakar Krishna Chitale.

Summer Time, which commenced on April 18th, will cease on Sunday next, Oct. 3rd, at 3 A.M., when the clock will be put back to 2 A.M. The hour 2–3 A.M. summer time will thus be followed by the hour 2–3 A.M. Greenwich time.

KING EDWARD'S FUND.—This great Fund's twenty-ninth annual report, which has just been issued, shows that the income for the last financial year was £413,872, and the expenses £312,420. The receipts included £50,000 from the estate of the late Mrs. John Wells, and £85,000 from that of the late Lord Mount Stephen. The unexpended balance was placed to the Funds and Capital Accounts. Since the establishment of the Fund in 1897 the receipts have amounted to £8,846,357. Of this total the British Red Cross Society and the Order of St. John of Jerusalem have contributed £259,000, the Combined Appeal produced £395,000, and £383,000 has been provided by the League of Mercy. The distributions to hospitals, convalescent homes, and sanatoria for consumption come to £5,263,000, and the working expenses are less than 3½*d.* in every pound received.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXCI.—THE TREATMENT OF CHOLERA.

CHOLERA has been defined by Manson as an acute infectious epidemic disease characterised by profuse purging and vomiting of a colourless serous material, muscular cramps, suppression of urine, algidity and collapse, the presence of a specific bacillus in the intestines, and a high mortality. The passage of profuse colourless watery stools (often containing white flakes of denuded intestinal epithelium) accompanied by copious vomiting of watery fluid is pathognomonic of cholera. Later diagnostic signs are muscular cramps and suppression of urine, absence of the pulse at the wrist, cold and clammy skin, shrunken features, shrivelled extremities, and feeble, husky voice.

The golden rule for guidance of the practitioner in endemic areas and during epidemic times is that all diarrhœa accompanied by vomiting should be regarded as incipient cholera and immediately treated as such. Failure to appreciate the value of this rule has caused the loss of many lives. Since the patient's prostration is sometimes out of all proportion to the catharsis, cholera must be partly a toxæmia due to absorption of the toxins of the cholera vibrio from the intestines. But the collapse, suppression of urine, and subsequent uræmia are in most cases due to loss of fluid from the system, and if this loss of fluid is arrested collapse and other serious symptoms do not develop. This being so, the treatment of cholera naturally resolves itself into two stages: (1) the medical treatment of the stage of evacuation by intestinal astringents, with the object of arresting the diarrhœa and thus preventing the onset of collapse; and (2) the surgical treatment of collapse by intravenous saline injections in an effort to restore and maintain the circulation until the loss of fluid from the bowel naturally ceases.

As most cases of cholera, owing to the fulminating character of the disease, come under notice only when collapse has already set in or is impending, by which juncture the time for medical treatment is past, the great value of this treatment is not adequately realised.

The Stage of Evacuation.

For the treatment of cholera in the stage of evacuation the most popular and widely used of all remedies is opium, either alone or in mixtures with acids or carminatives. Doubts have frequently been expressed as to whether such treatment can cut short the disease, since it is impossible in any given case to declare that the disease would have developed into collapse had treatment been withheld. Some writers hold that the use of opium is dangerous, basing their arguments on the erroneous theory that opium is excreted by the kidneys. However, from records extending over many years of the results of treatment of a large number of cases of cholera in the endemic area of the Asansol Mining Settlement, it is now clear that opium combined with acids or carminatives is capable of cutting short the disease in the stage of evacuation in the great majority of cases. The mortality-rate in the mining settlement of cases of the fully-developed disease, most of them being collapsed, treated with such mixtures was only 50 per cent., compared with a *constant* annual mortality-rate of approximately 90 per cent. in wholly untreated cases. The great value of opium in the stage of evacuation of cholera was well summed up by the late Dr. A. J. Wall, who held—from a large experience of cholera in India and Europe—that if in the primary stage of the disease the evacuations are stopped the course of the disease will be stopped also, and that opium administered hypodermically before collapse has set in will in a large number of instances save the patient from this complication.

Drugs.

A doctor called in to treat a patient with cholera in the stage of evacuation should immediately give a hypodermic injection of morphia gr. ¼ c. atropine gr. 1/100. One of the antidiarrhœics mentioned below should then be prescribed and administered in the manner indicated.

℞ Sod. bicarb., gr. 15; creta preparata, gr. 15; spt. æther, ℥ 15; spt. ammon. aromat., ℥ 15; tinct. opii ammoniatæ, ℥ 30; aq. chlorof., ad ℥i. ℥i every 20 minutes until purging and vomiting have definitely ceased.

℞ Acid sulph. aromat., ℥ 15; tinct. camph. co., ℥ 30; tinct. chlorof. et morph. co., ℥ 5; aq. menth. pip. ad ℥i. ℥i every half-hour until purging and vomiting have definitely ceased.

Kaolin or China clay, known also as bolus alba, is a native white aluminium silicate, which in addition to being an intestinal astringent in large doses, possesses the property of adsorbing toxins from solutions, thus rendering them inert. It is used with great success in the primary stage of cholera—one ounce or more suspended in a glass of water being swallowed slowly by the patient every hour until diarrhœa and vomiting have ceased. Half doses are then continued every four hours during the succeeding 24 hours, and quarter doses subsequently until the risk of relapse is past—i.e., until the end of the third day.

I have reintroduced the use of the essential oils in the treatment of the stage of evacuation in cholera with much success in the form of the following mixture:—

℞ Ol. anisi., ol. cajaput, ol. juniper, āā ℥ 5; acid sulph. aromat., ℥ 15; spt. æther, ℥ 30.

Of this mixture half-drachm doses should be administered in an ounce of water every quarter of an hour for two or three hours, by which time all symptoms have usually disappeared. Doses vomited should be repeated. As the mixture contains no opiates it can be safely placed in the hands of any intelligent person for administration. For this reason it is particularly valuable in the treatment of cholera during epidemics when large numbers of cases have to be treated simultaneously. It is a powerful carminative, stimulant and astringent, quickly arresting diarrhœa, and thus aborting the disease. Relapses after its use are unknown, and no serious restriction of diet is necessary on apparent recovery.

The Stage of Collapse.

When owing to lack of treatment in the primary stage of the disease a dangerous amount of fluid has been lost from the system and collapse has set in, intravenous saline injections must be resorted to without delay if life is to be saved. It should be clearly appreciated that collapse from loss of fluid in cholera does not differ fundamentally from collapse from hæmorrhage, the principles underlying the treatment of the latter applying with equal force to that of the former. Success depends on the introduction of a sufficient quantity of fluid rather than on its quality. The rôle of intravenous saline injections in the collapse stage of cholera is purely symptomatic and non-specific—viz., to replace as often as may be necessary the fluid lost from the circulation until the violence of the attack has spent itself and the flux from the bowel spontaneously ceases. Repeated injections are in many cases necessary over a period ranging from two to six days. Owing to its protracted and exacting nature, the treatment of collapse in cholera is much less successful in private practice than in hospitals specially organised and staffed to carry it out assiduously.

Leonard Rogers, following Gaertner and Beck, has advocated the use of intravenous hypertonic saline injections (120 gr. of salt to the pint of water) on the theoretical grounds that by oversalting the blood diarrhœa would be arrested by osmotic attraction of fluid from the intestines into the blood-vessels and the circulation thus be effectively maintained. Many years experience in India has convinced me that hypertonic salines possess no such specific actions, repeated injections of these, as of other salines, being in many cases necessary to maintain the circulation.

Isotonic salines (90 gr. of salt to the pint of water) have been found to answer all physiological requirements for the replacement of the fluid lost in cholera and the maintenance of the circulation until the flux from the bowel ceases. They are used intravenously, subcutaneously, and rectally as circumstances require. Intravenously they are administered preferably in the form of alkaline isotonic salines, which were first introduced by Sellards. He had observed that in cholera very large doses of alkalies were required by mouth to render the urine alkaline, and concluded that alkalies administered intravenously in conjunction with isotonic salines would probably relieve suppression of urine after collapse, and thus prevent the onset of uræmia. In practice this has proved true. Alkaline salines should therefore be used as a routine measure in the treatment of collapse in cholera, 60 gr. of sodium bicarbonate being added to each pint of isotonic saline solution.

In totally collapsed patients 3–4 pints of saline may be required at once to restore the pulse at the wrist, the solution being run into the vein at the rate of 2 oz. per minute. Should collapse recur, as it frequently does, either because of the absorption of the fluid by the dehydrated tissues or by its leakage through the denuded intestinal mucous membrane into the gut, further injections must be given until the circulation is adequately maintained, ½–2 pints being administered slowly on each occasion as circumstances demand. Intramuscular injections of pituitary extract are of considerable value in combating collapse, in conjunction with intravenous saline injections. Where the pulse at the wrist is very feeble, showing that collapse is impending, subcutaneous injections of isotonic saline under the skin of the flank are often successful in avoiding it. Rectal injections of hyperalkaline saline—150 gr. of sodium bicarbonate to the pint of isotonic saline—should be administered slowly every 2–4 hours in cases where collapse has been overcome but suppression of urine still persists.

Vaccination, either by hypodermic injection of ordinary vaccines or by oral administration of Besredka's bilivaccine, conveys immunity lasting for several months. These vaccines are thus useful where there is continued exposure to infection in endemic areas. In my experience the mixture of essential oils mentioned above, taken three times a day in doses of a drachm, during epidemics afford almost absolute protection against the disease.

J. WALKER TOMB, O.B.E., M.D. Dub., D.P.H.,
Medical Officer, Mines Board of Health,
Asansol, Bengal.

Special Articles.

TEACHING OF PSYCHIATRY TO MEDICAL STUDENTS.

BY W. S. DAWSON, M.D. OXF.,
ROCKEFELLER MEDICAL FELLOW.

A NEED for alteration in the teaching of psychiatry in British medical schools has long been apparent, and has now been commented upon by the Royal Commission in Lunacy. A revision of the present curriculum is all the more imperative on account of the mental hygiene movement which, already well established in the United States and elsewhere, is beginning to assume activity in this country. Moreover, it is likely that before long the medical profession will be called upon to deal more effectively than hitherto with the problem of mental disorders. The graduate who wishes to specialise is already provided for in several comprehensive courses of instruction, while the general practitioner embarks upon his work with an all-too-narrow outlook resulting from the scanty attention paid to psychiatry in his student years. Under the present régime not a few medical students carry away with them an unduly restricted and pessimistic impression of mental disorders derived from their experience of demonstrations at mental hospitals, and from instruction which is often limited to descriptions of neurotic and psychotic types, with scanty attention to the underlying principles of investigation and treatment. Not until this attitude is corrected and broadened by a revision of the present methods of teaching will the general practitioner be prepared to play that adequate part in the early treatment of mental disorder which modern knowledge is rendering possible and which the general public is beginning to demand. The matter has been receiving attention in the United States, where the teaching of psychiatry in some medical schools is free from the defects of our system and has certain features which might be adopted with advantage.

Teaching of Psychiatry in America.

Some years ago the American Medical Association made a survey of medical schools in the United States, and categories were drawn up according to the standard of teaching. More recently an inquiry was made concerning instruction in psychiatry, and, while it was found that even in the "A" class schools there was a great variation in the importance attached to this subject, yet it was the general opinion that 60 hours, divided equally between didactic and clinical work, was the minimum time which should be set apart. Several schools in which psychiatry was taught as part of the neurology course reported that their schedules were in process of revision, so that the former might receive the attention demanded by modern requirements. The following are the courses in psychiatry required by certain universities.

1. *Chicago.*

Two year pre-medical courses in psychology are optional, but are strongly urged (48 to 96 hours lectures and practical work).

Clinical Psychiatry.—Demonstration and conference courses at the Psychopathic Hospital (a hospital for early mental cases run in connexion both with the university and a general hospital), 24 hours. Clinical and conference course of 24 hours at a public mental hospital.

2. *Colorado.*

Third Year.—Lectures on the fundamental laws of psychology as applied to the relation of physician and patient, and to diseased states; psycho-analysis.

Fourth Year.—Clinical instruction in psychiatry and neurology, 42 hours. The class is divided into small sections, each spending one and a half hours daily for three and a half weeks. Lectures in neurology and psychiatry, 66 hours. In the lectures in psychiatry special attention is paid to the neuroses and to the principles of psychotherapy.

3. *Columbia, New York.*

Second Year.—Fifteen lectures and demonstrations in psychopathology. 1. Introductory: Mind and medicine. 2. Structural basis for mind (mind and body). 3. General concepts of intellect and emotion. 4. The "ego instinct" group. 5. The "sex instinct" group. 6. The "herd instinct" group. 7. Cultural modifications of instinctive behaviour. 8 and 9. Mental mechanisms. 10. Abnormal types of mental adaptation; Psychoneurosis. 11. Psychosis. 12. Anomalies of mental development; crime, drug, and alcohol addiction. 13. Psychopathology of general illness. 14. Foundations for social psychiatry. 15. Foundations for mental hygiene.

Third Year.—Psychiatry, 15 lectures.

Fourth Year.—Thirty clinical lectures.

A total of 60 hours is required from all students. Certain additional courses are available, but are not obligatory.

4. *Harvard.*

First Year.—Medical psychology, 10 lectures. The topics include: Environment; emotional reactions; modification of experience; rôle played in these reactions by the various systems; ability to receive, elaborate, store, and reactivate impressions; variations in constitutional endowment; special lines of weakness; importance of personal factors in medicine in general and especially in relation to nervous and mental disorders.

Third Year.—Sixteen clinical lectures at the Boston Psychopathic Hospital. Examples of all the more important

varieties of mental disorder; special emphasis on mild and incipient cases which are frequently treated by the general practitioner. More attention is given to the dynamic analysis and practical problems of the individual case than to questions of formal classification. Examples of nervous and mental diseases of childhood are presented. Each student is given an opportunity to study individual cases. Instruction is also carried on in 12 periods of two and a half hours each, in which small groups of students examine and discuss cases under the supervision of members of the staff.

5. *Johns Hopkins Hospital (Phipps Institute).*

The following courses are obligatory.

First Year.—Personality study as a concrete basis on which to become familiar with the data and methods of descriptive and dynamic psychobiology. Ten hours of class discussion followed by group discussion in which personal problems and experiences are reviewed.

This course enables the student to gain some insight into the working of his own mental processes, so that later he may handle patients with greater understanding of the determinants of conduct, emotional factors, intellectual assets and deficits, and so forth. The student is encouraged to think out his own problems rather than to accept some definite school of psychological thought. In many respects this course is more of a mental exercise than a set form of instruction.

Second Year.—Course familiarising the student with the methods of examination of cases with well-defined problems and reaction types. Emphasis is laid on: Methods of taking the life-history; study of assets and determining factors; intelligence tests; mental status; principles of getting at dynamic determining factors of the patient's life; study of orientative activity, associative processes and resources, affective assets, and habit formations.

This course takes 20 hours of group work. The success with which the student approaches this stage of his work will have been determined largely by the thoroughness with which he entered into the course of the preceding year.

Third Year.—Examination and discussion of cases. Review of fundamental psychopathological reaction types. In this course stress is laid on the study of types and problems, on the observation of symptoms and signs in an orderly manner, and on the recognition of outstanding problems of adjustment. Somatic therapy, the principles of treatment by rest, graded re-education and other measures also receive attention. There is a recapitulation and study of psychogenic and constitutional problems. The course is completed in eight periods of two hours each in groups of five students.

Fourth Year.—Eleven clinical demonstrations of psychiatric cases, groups, and topics. Individual study and report of at least six cases (out-patient or ward) during the fourth year.

All the courses of instruction at the Johns Hopkins total not less than 65 hours, spread over the four years of clinical study. The aims of this teaching have been expressed by Dr. Adolf Meyer, Professor of Psychiatry at Johns Hopkins, as follows:—

"The most fundamental departure from current tradition is the emphasis not on the question whether the patient presents one or other of a set of diseases, but rather on the question how many facts and conditions enter into the state of the patient, what reaction complexes are recognisable as relative entities, and what psychopathologic, cerebral, general, somatic, endocrine, toxic, and infectious components. Let us get away from the dominant notion of classification of each patient as having just one exclusive disease."—Progress in Teaching Psychiatry, *Jour. Amer. Med. Assoc.*, vol. lxix., 1917.

The courses at the Johns Hopkins are the most comprehensive and liberal of all, and have served as an example to other medical schools in the United States, in many of which Hopkins graduates hold teaching positions. With the growth of scientific aids to medical diagnosis, and with the development of laboratory methods, there is an increasing danger of overlooking the personalities of the patients and the psychological factors in the clinical picture. How often does a diagnosis of "functional" after exhaustive physical examinations spell the cessation of efforts in further investigation and treatment on psychological lines! Some time ago Dr. G. E. Vincent, of the Rockefeller Foundation, spoke on this topic:

"It has been asserted with some reason that in its preoccupation with the diseases of the body scientific medicine has too much neglected the psychic and social factors. The rapid spread of the cults which invoke various forms of mental suggestion is probably due in some measure to the failure of modern medicine to include in its scope the relations of mental and physical states, to study these in a scientific spirit, and to utilise the healing power of rationally controlled suggestion. Recent progress in psychiatry, war-time experiences with disorders of the mind, the rise of mental hygiene, and the increased attention being given to these subjects in medical schools and at professional meetings, are evidence that the mental aspect of disease is being recognised more fully."

The Ends in View.

The leading medical schools in the United States aim at training the future medical practitioner to deal with the "functionals," the neurotics, and the psychotics which form no inconsiderable part of his practice with some understanding of scientific principles, instead of leaving him to learn by sad experience that many of his problems are psychobiological rather than physical.

Certain features in the schedules given above call for special comment. In the first place the student is introduced to psychology in his preclinical or early in his clinical years, so that he comes to the study of psychiatry with a certain amount of preparation and with some understanding of the dynamic factors which underlie normal and abnormal conduct; secondly, he is prepared to appreciate psychological factors in other departments of his clinical work; thirdly, clinical instruction in psychological medicine is wider and more intensive than is required by our examining bodies, and assumes an importance equal to that of other branches of medicine instead of remaining an unconsidered trifle. The actual handling and reporting of cases gives the student an understanding of psychopathological problems and of methods of treatment which lectures and demonstrations alone could scarcely do.

If, as is hoped and as the Royal Commission has urged, facilities for early treatment of mental disorders are multiplied, it may be expected that out- and in-patient clinics will work in close association with the general (teaching) hospitals. There should be no difficulty in finding adequate material for students even under existing conditions. Additions to an already overburdened curriculum are hardly to be contemplated. But modification of present teaching in psychiatry should receive serious attention.

Lectures in medical psychology have already been instituted in one or two British universities and should be available for students in all medical schools after the second professional examination has been passed. Quite general topics might be selected, provided that their bearing on psychiatry is kept in mind. A course of six lectures might be given as follows: (1) Relation of mind and body; (2) dynamic concept of psychology; (3) emotion and instinct; (4) mental mechanisms; (5) study of personality; (6) the individual and society.

In the teaching of clinical psychiatry greater attention might be paid to the actual handling of cases. The demonstration of severe and chronic types of mental disorder found in mental hospitals and of the more pronounced forms of congenital mental defect is of at least questionable benefit for the general practitioner, provided that he is taught to recognise suicidal risks and other dangerous anti-social tendencies. If no addition to the present curriculum is feasible, at least four of the 10 or 12 demonstrations which are usually given in mental hospitals might usefully be replaced by attendance and instruction in the psychiatric out-patient department of a teaching hospital. The value of investigating and reporting on cases, as is done in internal medicine, cannot be overestimated as a means of familiarising the student with the problems which have to be faced in psychiatry. It will be noted that this is made a special feature of the teaching at Harvard and Johns Hopkins. It is difficult in the dozen or so lectures which are usually given to cover all the ground which is desirable. A lecture devoted to the principles of case-taking and the evaluation and interpretation of symptoms would be of the greatest benefit. Other topics, such as the handling of neurotic and psychotic cases in general practice, the aims of mental hygiene, and the psychopathology of childhood, would be of more practical use

to the general practitioner than instruction about idiocy and dementia. Above all, it is desirable to inculcate a wider appreciation of psychiatry as not being limited to incurable "insanity." Questions on psychiatry should find a regular place in the papers, and cases should be presented for commentary in the clinical part of the final examinations.

It may be anticipated that if the student is given greater encouragement to regard psychiatry as a subject which is as important as other branches of medicine, he will not only reap the benefit in practice by feeling better able to cope with the psychiatric problems which come before him, but also that he will be in a position to further the aims of mental hygiene. Psychiatry has not yet said the last word on the question of the difficult and "nervous" child, the juvenile delinquent, and many other varieties of mal-adjusted personality. In the developments which have already taken place in the United States and which are being attempted in this country the general practitioner must be a sympathetic agent.

MEDICINE AND THE LAW.

Forceps Left in the Body after Operation: "Negligence but not Gross Negligence."

AT an inquest held last week upon a woman, aged 47, who died in St. George's Hospital, the verdict recorded by the coroner (Mr. Ingleby Oddie) was that "death was due to peritonitis following an operation for the removal of a pair of artery forceps negligently left behind in September, 1923, during an operation for the removal of a cyst." The coroner added, "and I further say that the said negligence was not gross and culpable."

The history of the case appeared from the hospital notes of the date in question, which were produced by Dr. R. A. Burns, at present resident assistant surgeon at St. George's Hospital. The deceased had been admitted to hospital on Sept. 16th, 1923, for immediate operation. She recovered and was discharged a month later. On Sept. 15th of the present year an operation was performed and a pair of Littlewood's forceps were found in the pelvis. They were six inches long and were still held together by erosion though broken. The patient progressed favourably and there were hopes of her recovery, but on Sept. 17th she died. Dr. H. B. Weir, who made the post-mortem examination, said death was due to peritonitis following the operation for removal of a foreign body from the intestines; he said he had read of such cases but had never seen one.

The coroner's verdict, it will be observed, distinguishes between simple negligence and negligence which is gross and culpable. This distinction corresponds with the difference between the lesser degree of negligence which is necessary in a civil action for damages and the more serious degree of negligence which must be present to justify a criminal charge. As the deceased did not survive there can be no question of a civil action for damages for negligence; her right to claim damages died with her. Otherwise it would have been strange if a jury in the High Court or in a county court had not considered it negligent to leave a pair of forceps in a patient's body after operation. The legal duty not to do so is so plain as to admit no denial; as the lawyers say, *res ipsa loquitur*—the damage tells its own story. It might, of course, have been difficult for the plaintiff to fix the personal responsibility. Dr. Weir, in his evidence at the inquest, stated that at St. Thomas's Hospital it is the custom to make a sister responsible for looking after all the instruments of an operation; he added, "the surgeon, however, is responsible for everything." The hospital itself would not be legally liable in damages. "A hospital authority," said Lord Justice Kennedy in Hillyer *v.* Governors of St. Bartholomew's Hospital (1909), "does not make itself liable in damages if members of its staff, of whose competence there is no question, act negligently towards a patient in some matter of professional care or skill or neglect to use or use negligently in his treatment the apparatus or appliances which are at their disposal." But the individual physician or surgeon may be sued provided that the action is begun within the period prescribed by the Statutes of Limitations. It is perhaps worth noting that, if the deceased had survived and had sued for damages, the period of six years within which she would have had to begin her action would have dated from September, 1923, when the alleged negligence occurred, and not from the later date when the unfortunate consequences were discovered.

To turn back to the criminal aspect of the case, Mr. Ingleby Oddie's verdict is a refusal to set the criminal law in motion. A coroner's verdict of murder or manslaughter against a named person is technically sufficient to send that person for trial before a criminal court. In practice, however, the coroner's verdict is seldom relied upon for this purpose, but proceedings are initiated before magistrates in order to have the accused committed for trial in the ordinary way. Where, as in the present case, the coroner's verdict has the deliberate effect of exonerating all concerned from any charge of criminal negligence, it would be most unusual to take any further criminal proceedings before magistrates with a view to placing anyone upon his trial.

Destruction of Dog Suspected of Rabies.

A police-sergeant stationed at Balham was summoned on Sept. 23rd for ill-treating a dog by killing it in such a manner as to cause it unnecessary suffering. The dog, it seems, was brought to the police station under suspicion of suffering from rabies. The officer, believing the suspicion reasonably well founded, killed the dog with three blows of his truncheon. It was alleged that the animal's cries aroused the neighbours, and ultimately the Royal Society for Prevention of Cruelty to Animals prosecuted the sergeant. Section 61 of the Metropolitan Police Act of 1839 authorises a constable of the Metropolitan Police Force to destroy any dog or other animal "reasonably suspected to be in a rabid state." The prosecution said there might have been adequate reasons for destroying this dog, but there could be none for killing it in this particular way. The magistrate held that the sergeant had not intended to cause unnecessary suffering but had in fact done so; he should not have hit the dog at random with his truncheon. The case was dealt with by ordering the defendant to pay 5 guineas costs but no penalty.

Parliament has made other provisions for the disposal of unwanted dogs. The Metropolitan Streets Act of 1867 (Section 18) authorises a magistrate, if he has cognisance of a complaint that a dog has bitten or attempted to bite any person in the metropolis, to direct its destruction, "and any police constable may destroy the same accordingly." Stray dogs seized and detained by a police officer under the general powers of Section 3 of the Dogs Act of 1906 may, if unclaimed after seven days, be destroyed "in a manner to cause as little pain as possible," and a warm-hearted legislature added that no dog so seized should be given or sold for the purpose of vivisection.

Rabies is a disease of which, happily, the present inhabitants of this country know very little. Probably, however, they know enough to take no risks. If a dog, alleged to be mad, is seen running at large in a public place, prudence may dictate its immediate destruction by any means possible. But if a dog is chained up at a police station, the same precipitancy may not be necessary. In the recent proceedings, when the police-sergeant quoted the 1839 Act as his authority to destroy upon reasonable suspicion, the representative of the prosecuting Society submitted that that provision applied only to dogs in the public street, not to dogs tied up at a police station. The submission is probably wrong as a matter of law, and in any case sympathy cannot be withheld from the police officer who undertakes an unpleasant and

possibly dangerous duty. But the incident suggests various questions. Are adequate official instructions issued to the police for dealing with occasions of this kind? Is the possibility of veterinary examination and of using a painless killer borne in mind? And was any post-mortem or other investigation made to ascertain if this was in fact a case of rabies?

Dangerous Drugs Regulations: A Severe Sentence.

The prosecution recently undertaken under the new Dangerous Drugs Regulations, which specially prohibit a drug addict from obtaining morphia preparations through several practitioners without disclosing the fact, has ended in a severe sentence. Mr. Gill, the Westminster police-court magistrate, at a previous hearing, seemed willing to release the accused on condition of his entering a home. At the final hearing, however, on Sept. 15th, a detective-inspector gave evidence of the man's criminal record which made a considerable difference to the magisterial disposal of the case. It appeared that the defendant had been convicted in different names of both fraud and housebreaking and that, though it was true that (as he had stated) he was gassed during the war, he was sentenced to three years' penal servitude in January, 1923. Mr. Gill passed a sentence of four months' imprisonment. It is hardly to be supposed that a drug addict who infringes the new Regulation will be so severely dealt with if his character is reasonably good.

NATIONAL HEALTH INSURANCE.

NEW ARRANGEMENTS FOR DENTAL BENEFIT.

SINCE July last a greatly increased number of insured persons have become entitled to dental benefit, the amount of money available for its provision exceeds £2,000,000 per annum, and a large majority of the approved societies and of the practising members of the dental profession are now concerned. During July a Dental Benefit Joint Committee, consisting of 14 members representative of approved societies and 14 of the dental profession, considered a new scale of fees and conditions of service, and early in August the report of this committee was approved by the Consultative Councils in England and Scotland.

It is understood that private contracts between patients and dentists for the payment of additional fees are only permissible under this agreement in exceptional conditions or where some form of treatment or appliance is desired not provided for in the scale, and the insured person is prepared to meet the additional charge. The committee recommended that the adoption of the new scale of dental charges should be conditional upon the institution of a service of regional dental officers charged with duties somewhat similar in character to those of regional medical officers, and the Ministry of Health and Scottish Board have undertaken to frame a scheme for such a service, the expenses to be defrayed out of the funds available for dental benefit. Under the schemes of dental benefit now in operation it is a condition that the whole of the cost of dental treatment shall be defrayed by the society, except that as regards provision of artificial teeth and repairs and remodelling of dentures a society may decide to pay a proportion of the cost, not being less than one-half. This provision was adopted on the advice of the Consultative Council with the object of encouraging conservative treatment. Apprehension having been expressed by certain societies that benefit under the new conditions may exhaust the available funds, the central health departments are considering the possibility of amending the scheme so as to permit a society in suitable circumstances to pay a proportion only of the cost of treatment, the principle of encouraging conservative treatment being maintained. The Dental Benefit Joint Committee will also prepare a model dental letter and formulate procedure for disciplinary action.

Agreed Scale of Dental Charges.

The following is the scale of dental charges for members of approved societies, which has been approved by the Dental Benefit Joint Committee, and is to operate from Oct. 1st, 1926, to July 6th, 1930:—

	£	s.	d.
1. Scaling and treatment of the gums—per individual	0	7	6
2. Fillings—per filling	0	7	6
3. Root treatment—			
Six front teeth, upper or lower—per tooth	0	5	0
Remainder, upper or lower—per tooth	0	7	6
4. Crowns, gold or other—per crown	1	11	6
Where root treatment is necessary, this may be charged for at the rates shown in (3) above.			
5. (*a*) Extractions—			
With or without local anæsthetic—per tooth	0	2	6
Maximum fee for upper or lower	0	15	0
Maximum fee for upper and lower	1	5	0
(*b*) General anæsthetics: (i) Administration fee—			
Upper *or* lower	0	7	6
Upper *and* lower	0	10	0
Where nitrous oxide or similar anæsthetic (simple administration) is used, only one administration fee to be charged to each patient. Maximum fee for extractions, including simple administration of general anæsthetic—			
Upper *or* lower	1	2	6
Upper *and* lower	1	15	0
(ii) Under prolonged anæsthesia. Where not less than 12 teeth are extracted at one operation under prolonged anæsthesia, excluding the simple administration of nitrous oxide or similar anæsthetic—			
Dentist's fee (including all extractions)	1	5	0
Anæsthetist's fee	*1	1	0
* Or such lower sum as the anæsthetist is ordinarily prepared to accept.			
6. Dentures—			
For first two teeth on a denture	1	0	0
For each additional tooth	0	5	6
Fee for a full or nearly full (ten teeth or more) upper or lower denture	3	0	0
Fee for full or nearly full (ten teeth or more per denture) upper and lower dentures	6	0	0
Where the fee for full or nearly full denture applies to the single denture, no charges under items (1), (2), or (3) above to arise in respect of the jaw concerned. Where the fee for full or nearly full dentures applies to the double dentures, no charges under items (1), (2), or (3) above to arise.			
7. Repairs, additions, and emergency treatment—			
Repairs and emergency treatment up to 10*s.* without previous submission of estimate—account to be rendered to the society on the society's recognised dental letter.			
Minimum fee for repairs and/or additions	0	7	6
Maximum fee for repairs and/or additions	1	10	0
8. Remakes—			
Fees to be calculated at two-thirds or, within 12 months, at one-half of the scale, with necessary additional teeth at 5*s.* per tooth.			
Maximum fee, including additional teeth, per denture	2	10	0
9. Examination and report—			
Where patient does not return for treatment	0	2	6

Conditions and Specification of Materials.

An appendix to the scale sets out the conditions and specification of materials approved by the committee, and to come into force over the same period. The dentist shall apply to each case he undertakes the degree of skill and attention necessary, irrespectively of whether the patient comes to him under the terms of this agreement or as a private patient. The agreed scale is based upon the understanding that the dentist shall not be required to accept instalments or to incur the risk of bad debts, and may decline to commence or proceed with the work until he has received the proportion of the cost payable by the member. Any society which does not undertake liability for the full cost of dentures shall make this position clear to its members by an appropriate notice upon its dental letter. Other conditions binding on the dentist are these:—

Bands, wires, and fastenings must be of gold without extra charge.

After multiple extractions impressions for a permanent denture are not to be taken, except with the consent in writing of the approved society, within a period of three months from the date of the final extraction, but when it is necessary to fit dentures before the mouth is ready for permanent work, and the society approves this course, these must be of a permanent character and charged for at scale fees. These and all other new dentures are, if necessary, within 12 months to be remodelled or remade at one-half the original fee. It is understood that any necessary adjustment of the dentures within a reasonable

time after completion will be made by the dentist without additional charge.

The term "root treatment" is understood to mean either of the following: (1) The devitalisation of the pulp of a tooth and the subsequent removal of the pulp followed by the necessary treatment and filling of each root of the tooth. (2) The treatment of septic root canals and subsequent filling of each root. It does not include any dressing or treatment of the pulp of a conservative nature.

The anæsthetist's fee includes the cost of the anæsthetic as well as the cost of its administration. The choice of an anæsthetist will rest with the dentist performing the extractions. The anæsthetist must in all cases of prolonged anæsthesia be either a medical practitioner or a dentist (other than the dentist performing the extractions) skilled in the administration of a suitable general anæsthetic and included in a list to be approved by the Dental Benefit Joint Committee.

A dentist will be required to accept a dental letter only if it is produced to him within 21 days of the date of its issue and within six weeks of the commencement of treatment. He will be entitled to be paid, for such treatment as is then completed, at the original rates agreed upon between him and the patient. For the remainder of the treatment he will be entitled to the scale fees only. If a dental letter is produced either more than 21 days after the date of its issue, or more than six weeks after the commencement of treatment, the dentist will be entitled, if he so desires, to be paid for the whole of the treatment at the fees originally agreed upon. In order to avoid subsequent difficulties, the dentist before arranging on the occasion of a patient's first visit to charge on the basis of his private fees, should endeavour to satisfy himself as to whether the patient is or is not an insured person.

If a dentist is unable for any reason to complete the treatment authorised in respect of any insured person, he should notify the society concerned of the amount of treatment completed, of any payment already made by the insured person, and of the reasons for his inability to complete the remainder of the treatment.

If any doubt arises as to the correctness of interpretation of the scale of dental charges, the matter should be referred to the Secretary of the Dental Benefit Joint Committee, Ministry of Health, Whitehall, London, S.W. 1.

In the case of unforeseen conditions or unforeseen developments arising during treatment after diagnosis and acceptance of the estimate, the dentist may submit an additional estimate.

When any estimate has been submitted to an approved society and the society has questioned it, there shall be provision for an appeal by either party to a professional referee or committee to be recognised by the Dental Benefit Joint Committee.

The specification of materials to be used in work for members of approved societies provides that filling material is to be of first-grade quality manufactured by the best-known manufacturers and suitable for each individual cavity. In prosthetic work it is laid down:—

In vulcanite work, if pin teeth are used, all pins to be of (*a*) platinum, (*b*) nickel gold-cased, or cased with other precious metal, or (*c*) nickel alloy gold-cased, or cased with other precious metal, such as are made by the best-known manufacturers. Pins, gold or platinum, sheathed (i.e., anchored) within the porcelain, are permissible. If diatorics are used for anterior teeth, they are only to be used in cases where artificial gum is necessary and the upper anterior teeth must be wired in. All vulcanite partial cases must be sufficiently rigid. Metal strengtheners must be compatible with vulcanite and not liable to corrode in the mouth. Where gold has to be used for dentures by special estimate, it must not be less than 16 carat and must be of adequate strength. Bands and wires to be of not less than 16-carat gold, and bands to be not less than 7 gauge.

CALEDONIAN MEDICAL SOCIETY.—The annual meeting of this society was held at Storrs Hall Hotel, Windermere, on Sept. 24th. Dr. W. E. Henderson, the President, M.O.H. for Westmorland, delivered an address on the Historical and Literary Associations of Westmorland to a large audience. Sir Robert Jones, of Liverpool, and Sir Samuel Scott, High Sheriff of Westmorland, were elected honorary members, the annual dinner being held in the evening. The 1927 meeting is to take place at Dundee under the presidency of Dr. Angus MacGillivray, while in 1928 the society will celebrate its jubilee at Edinburgh under the joint presidency of its founders, Dr. S. Rutherford Macphail and Dr. W. A. Macnaughton.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Courses for Health Visitors.

LAST year the Scottish Board of Health arranged some four courses of lectures, demonstrations, and special visits for the health visitors of Scotland. A course was conducted in each of the four large cities. The educational value of post-graduate training is much higher than that of primary courses, since, to use a term less common than it used to be in psychology, the post-graduate's apperception masses are greater and better organised when, through experience, the weak points in his or her knowledge have been discovered. The functions of the health visitor are so novel and have developed at such a pace within the last ten years that most of those appointed in the earlier stages of the child welfare movement welcome the opportunity of seeing the great new developments at the city centres, and last year local authorities gave the movement their cordial support. The attendance was considerable, but it was felt that four such courses were rather more than the circumstances justified, and the Board has now decided that requirements will be met by courses held in the autumn and spring at either Aberdeen, Dundee, Edinburgh, or Glasgow. Local authorities may pay to their health visitors the fee for the course, travelling expenses (third class), and subsistence not exceeding £7 for the period. This expenditure ranks against the maternity and child welfare grant, or, in the case of whole-time tuberculosis nurses, against the tuberculosis maintenance grant. Since in Scotland the local education authority is an ad hoc authority, these two grants cannot apply to the school nurses, but the Board is "prepared to approve the attendance of school nurses at such refresher courses as part of the Education Authority's scheme for school health administration," and in this way the whole ground is covered.

It may be added that the Scottish National Association for Health Visitors, Women Sanitary Inspectors, and School Nurses is a thriving body. At its annual meeting some special subject—for example, ultra-violet light or venereal diseases—is discussed by a group of experts, and the Association is entertained every year by some local authority. In this way both the health interest and the administrative interest are kept in touch.

Nursing in Scottish Health Administration.

To a booklet issued by the Alexandra Memorial Fund Sir John Gilmour, Secretary of State for Scotland, contributes an article on the Place of Nursing in Scottish Health Administration. He states that for health visiting in maternity service, child welfare, tuberculosis, school nursing, and combinations of these, the Scottish local authorities (town and county) employ about 430 whole-time trained health visitors. There are also about 400 part-time official health visitors, or part and whole-time school nurses. He emphasises strongly the need for special social training along the lines followed at the Edinburgh University School of Social Study and Training. Courses on similar lines are being organised in Glasgow. It is now fully recognised by medical officers and local authorities alike that a nurse's training, indispensable as it is, is somewhat too restricted for the full development of a health visitor's work. In the cities, of course, there is always a preference for whole-time officers, but in the counties the large federations of county associations are coming into greater favour.

Women Citizens and Health Work.

The Edinburgh Women Citizens Association is one of the most active educational bodies in Scotland. For the coming winter some 80 lectures have been arranged, as well as visits to civic institutions and industries. Some of the lectures are public, others are given at special study circles and are paid for by fee. Such subjects as mental deficiency and maternal

morbidity are considered by study circles and general public meetings are devoted to discussions on juvenile delinquency, the milk-supply, the hospital patient, and like topics. The public meetings are usually very well attended and the study circles are said to be well maintained. Certainly the efforts of the women to educate themselves in the social aspects of medicine are receiving every encouragement from specialists, both clinical and administrative.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Condition of County Hospitals.

Dr. Brendan MacCarthy, one of the medical inspectors of the Department of Local Government and Public Health, has recently made a tour of inspection of the county hospitals of some of the counties of Leinster and Connaught, and has written a devastating report of the conditions of the hospitals in counties Longford, Leitrim, and Roscommon. In the Longford hospital he found the instruments rusty, the glasses broken, the water-supply and sanitary arrangements bad, medical stores in disorder, clothes caked with dirt, beds unmade, and floors blue-moulded. "It would be difficult," he says, "to exaggerate the conditions of disorder and neglect which were to be seen everywhere. . . . The conditions of the institution threatened the lives of the patients who came in for treatment." In the district hospital at Carrick-on-Shannon, co. Leitrim, he found no disinfecting apparatus, no provision for coping with fire, a primitive laundry with no heat for drying, and only one bath, that being on the top floor. In Roscommon surgical hospital "the cleanliness was bad," the cooking arrangements were poor, hot water was not obtainable, and there was no disinfecting apparatus. The clothes came home from the wash dirty and torn. The conditions of these hospitals comes as a shock and a disappointment to those who had accepted the statements made by the Department of Public Health and Local Government that the county hospitals were organised to meet the normal requirements of a county in regard to hospital treatment, and were provided with all necessary scientific equipment. To make matters worse, in two of the counties reported on, the local authorities had been superseded by commissioners appointed by the Minister for Local Government and Public Health, and the responsibility for the scandalous state of the hospitals cannot, therefore, lie with the local authorities. Up to the present the system of administration by commissioners had commended itself to the public on grounds both of efficiency and economy, but these reports will give it a set-back.

Public Health Appointments in Cork.

The resignation is announced of Dr. Denis D. Donovan, who has been superintendent medical officer of health for the city of Cork for more than 40 years past. Dr. Donovan was not a whole-time medical officer of health, but a physician in busy practice, and there is now an opportunity to organise a system of health administration for the city under the charge of a whole-time medical officer. Cork is the second city in the Irish Free State, with a population of 78,468. Its death-rate last week was 21·9 per 1000 per annum. It is clear that such a city affords ample scope for the services of an expert sanitarian. Unfortunately, the commissioner administering the city takes another view, and he proposes to appoint a person to the combined office of medical officer of health and tuberculosis officer at a salary of £800 a year, rising to £1000. The salary is, of course, inadequate, and the proposal to combine public health and clinical duties is bad in principle.

The Medical Register.

The Executive Council issued a further order last week continuing the present system of medical registration for another month.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Infectious Diseases in Germany.

According to statistical records the number of deaths from puerperal fever has risen from 6935 in 1924 to 7005 cases in 1925. The incidence of hydrophobia shows a decrease from 48 to 20, the suspected cases having fallen from 2417 to 1160. Encephalitis lethargica has been diagnosed in 217 cases, against 156 last year; and trachoma in 2777, against 1809, the cause of the last-named increase being that agricultural labourers coming from the East have conveyed the infection to Germany. Infantile paralysis had decreased from 507 to 387 cases, the majority occurring in September, the smallest number in January. It would seem, however, that this disease again shows a tendency to spread; cases are reported from many places, and some schools are being closed.

The Cinema and the Child.

The influence of the cinema on the child described in the report of Dr. Newsholme, quoted in your issue of August 21st, has also been observed in Germany. In some cases a visit to a film featuring crime has been held to have instigated the child to wrong-doing. According to the present law in Germany, children under 16 years of age are not admitted to cinemas. Exceptions are granted only for selected performances—for example, humorous episodes or films of historical character, where neither cruelty nor battle, nor dominance and submission are represented. When the film control office has granted permission to admit children to any performances, the programme and advertisements must bear the words, "children admitted," otherwise entrance is refused.

QUEEN ALEXANDRA SANATORIUM FUND.

THIS Fund in its report for 1925–26, just issued, points out that for several years the policy of the Council had been to engage the whole of the rooms at a pension at Davos for the winter months, and to concentrate there all the patients helped by the Fund. This arrangement gave the patients the advantage of the society of a number of their own countrymen and women, while their supervision by the visiting physicians was easily arranged for. It was, in fact, the nearest approach possible to a British sanatorium on the old lines. While Davos was still only recovering from the depression caused by the war, an arrangement of this sort was welcomed by pension proprietors, who were assured of a full house. But with the return of prosperity, the terms the Fund could offer ceased to be attractive, and a new system had to be devised. In theory there were two possibilities, either to hire vacant premises and equip and staff them, a course full of financial and administrative difficulties, or to give up trying to keep the assisted patients together, and to allow them, within limits, to choose their own pension or sanatorium. As no premises were forthcoming, force of circumstances led to the adoption for 1925–26 of the simple £2 a week grant system. This amount was made up of the old allowance towards board and lodging of Frs.35 per week, with an additional Frs.15 per week for treatment expenses. The new scheme proved popular with the patients, as they were no longer known as "fund" or "institution" patients. While the advantage of unified supervision and control which concentration in one building would offer, was missing, there occurred no serious failure to carry out strictly the prescribed régime. Of the 26 patients, 9 were in sanatoriums, the remaining 17 in 7 other approved buildings. All except 1 remained in Davos till the end of April, when the grants terminated. Disease was arrested in 2 cases, much improved in 12, and improved in 12. Four cases were treated with tuberculin injections, 3 by artificial pneumothorax, 5 had light treatment. There was 1 case of tuberculous peritonitis and 1 of intercurrent appendicitis. The number of inquiries about the Fund and of applications increases each year, and shows that there is a real need of assistance in some such form. Many persons cannot afford to go to Davos without some help, and the Fund has been instrumental in bridging over the difference between possibility and impossibility in nearly all the cases which have come under its operations. The London address of the Fund is Mr. D. Vesey (hon. secretary to the Council), 97, Warwick-road, Earl's Court, London, S.W. 5, and the local secretary is Mr. C. Healy, Davos Platz, Switzerland.

Correspondence.

"Audi alteram partem."

REFORM IN MIDWIFERY.

To the Editor of THE LANCET.

SIR,—I have been greatly interested in Prof. G. W. Theobald's plea for reform in the teaching of midwifery for students of medicine, and as a general practitioner of an experience of over 2500 maternity cases in private practice, I am giving the result of my own experience during many years in the practice of midwifery. In the first 1500 consecutive cases I tabulated my clinical observations with the object of elucidating the cause of sex, and since then midwifery has been the subject of my choice.

I think I can fairly say that among the 2500 cases every conceivable difficulty in delivery has been presented to me. I have managed every case alone, and on only three occasions did I call in another practitioner to give the anæsthetic to help me to deliver. None of my mothers died as the result of parturition although a stillbirth occurred occasionally, due to other causes. Miscarriages and abortions I pass over. Strange to say, the very first case in my own practice, although a natural delivery of a living child which is alive now, the mother, a syphilitic, died six weeks after delivery of meningitis. I had three cases of Cæsarean section, mothers alive now; one case of diabetes mellitus, when the mother, aged 35, died from that disease, the child being alive; one case of macrocephalon, the fœtus being dead but the mother alive; and a few cases of placenta prævia, mothers doing well.

Without going into any details as regards my own experience, my object is to endorse Prof. Theobald's plea for a reform in the method of teaching students in midwifery. No teaching is of practical use unless the student is required to spend the time necessary in practical midwifery to enable him to observe the cases as they occur under skilled guidance by a teacher in obstetrics. He will learn to observe the natural phenomena of labour, to be patient until action is required, and then to act with acquired professional skill. He will hesitate with both digital as well as instrumental interference, and probably save valuable lives. Nature in labour works aseptically and contamination by external interference must be prevented. Digital examination must be strictly aseptic and abdominal palpation is most valuable as a guide. I can strongly recommend to the student to either do practical midwifery under guidance at a maternity hospital or to assist a general practitioner in a large practice as I did. Theory alone is not sufficient; he gets plenty of instruction from his teachers. When I was a student I attended 250 maternity cases before I did any hospital work, and I feel glad that I did. Midwifery in the hands of insufficiently trained nurses should not be permitted and the expulsion of the placenta by them strictly forbidden. In skilled professional hands I advocate the judicial expulsion by manual pressure on the abdomen. As for binding the mother after delivery, I think that, generally speaking, it need not be done, but in cases of excessive abdominal distension before labour binding up is to be preferred. As to laceration of the perineum, I think the doctor can do a good deal to prevent it by bimanual pressure on the perineum at the time of delivery of the head. In all my cases I scarcely remember using the long forceps; I always use the short. I happen to be intimately acquainted with surgical instruments, their history, and their use, and this knowledge is the very reason why I hesitate to use them until expediency demands. In protracted labour I give morphine and atropine sulphate by the sublingual method direct. No hypodermic injections. Scopolamine I have not tried. Under proper circumstances a whiff of chloroform is much appreciated by the parturient woman, and it has the advantage of hastening labour. In an occipito-posterior presentation I do not think it good practice to turn it by means of the forceps into an anterior one. Although the man I worked under did this before my eyes, and showed me how to do it, I have never done it in any of my own cases. Asepsis during labour is most essential.

I had the honour of being taught by Lister himself, whose in-patient dresser I was, and I have always strictly observed antiseptic precautions. My finger-nails are cut very close, and my hands never touch the patient unless they are sterilised. Gloves I only use in suspicious cases. I do not agree with examining the patient per rectum in order to observe the progress of labour, but I give a strong aperient to clear the bowel and perhaps use a catheter before labour has advanced. If a douche is required I always use the biniodide of mercury and potassium 1 : 1000.

In all my cases I have only troubled the maternity institution with my three cases of Cæsarean section and one case of perforation. Speaking of these urgency operations, I think there should be cordial relations between the maternity institution and the general practitioner, and while this has been the case with all institutions, not maternity, with which I have been in contact, I could point out one or two where such cordiality has been completely absent.

I am, Sir, yours faithfully,

A. P. MURTZ, L.M.S.S.A., L.S.A.

Finsbury Park, N. Sept. 26th, 1926.

THE RIGHTING REFLEXES IN ENCEPHALITIS.

To the Editor of THE LANCET.

SIR,—The Cameron prize lectures, delivered by Prof. Rudolph Magnus and just published in your columns, are of the greatest interest and importance. Those of us who during the past four years have had an opportunity of hearing the addresses by Prof. Magnus on this subject have been impressed by the enormous amount of careful and brilliant work which forms the basis of his excellent addresses. The righting reflexes appear from clinical observations to be of considerable importance in man in whom the development of the erect posture has apparently caused certain slight alterations in these reflexes.

In confining himself to the subject in hand Prof. Magnus does not stress the importance of these reflexes either in the normal man or in the pathological states. The righting reflexes in man, in so far as they are shown in the neck muscles, can be very easily demonstrated if, on placing a hand anywhere at the level of the scapulæ, we give a person a push in a forward or backward direction. It is then seen that the head carries out a rapid movement in such a direction that the centre of gravity, if the push is a mild one, is instantly brought back to the normal. After this the shoulders, body, and head return relatively slowly to the normal posture and equilibrium. The same can be demonstrated for sudden lateral movement if the patient is standing on one foot. If we are testing the righting reflexes by causing a forward movement of the trunk, we stand behind the patient and can see the posterior muscles of the neck carry out a typical contraction which is apparently of reflex origin. In certain pathological states this reflex may be lost or impaired, and various degrees of loss or impairment may be observed in post-encephalitic manifestations. In the post-encephalitic the mental changes are in the majority of cases the most disabling, but the loss of the righting reflexes produces very great disability in that this loss appears to be one of the most important factors in the impairment of coördinated automatic movements such as walking, and particularly in any movement which demands sudden change of direction.

The work of Rademaker which Prof. Magnus quotes shows that the righting reflexes are lost if a section is made through the mid-brain of an animal behind the third nerves, and he regards the red nuclei as the centre of origin for the righting reflexes. Partial

destruction of centres which have been demonstrated to have important efferent paths which are afferent to the red nucleus or of the red nucleus itself have been shown to be constantly present in encephalitis lethargica. There is thus evidence that in encephalitis the loss of the righting reflexes is determined by impairment of the function of the red nucleus. Rademaker points out that the rubro-spinal tract is probably the efferent path from the red nuclei. During the last year and a half I have had an opportunity of examining something over 70 cases exhibiting the post-encephalitic state, and I have found that in all of them the righting reflexes are either impaired or absent.

Led by these considerations I have endeavoured by special exercises to restore the impaired righting reflexes in these cases, and was astonished to find that with such training the righting reflexes reappeared, and I think that I may go as far as to say that the post-encephalitic improved both subjectively and objectively in proportion to the degree of reappearance of his righting reflexes. The only explanation that has occurred to me is that alternative paths can by re-education be brought to function in relation to the red nucleus. The post-encephalitic forms the most interesting study of neck reflexes in man that I have encountered, but altered righting reflexes are also found in cases of labyrinthine disturbances and in other conditions. A cinematograph film of the exercises for retraining the righting reflexes in post-encephalitics has been prepared.

Finally I wish to make it clear that any observations that I have been able to make are entirely dependent upon the data which, as a result of his researches, Prof. Magnus has brought forward in his addresses, and I am indebted to Dr. P. C. P. Cloake and Dr. G. Eden, of the Nerve Hospital, Birmingham, for much valuable assistance in dealing with the neurological problems involved. I am, Sir, yours faithfully,

A. LOWNDES YATES.

Newhall-street, Birmingham, Sept. 26th, 1926.

STRETCHING THE INTUSSUSCIPIENS.

To the Editor of THE LANCET.

SIR,—In the encouraging article on intussusception by Mr. Hamilton Bailey in your last issue I note that he obtains help by Daw's method of stretching the intussuscipiens by forceps. There can be little doubt that reduction is often facilitated and resection avoided by some such method. In dealing with friable and œdematous tissues, however, the finger is a very safe and convenient instrument. By inserting the little finger between the entering and returning layers of the intussusceptum the surfaces can be separated and the œdematous fluid expressed out of the returning and ensheathing layers. I think if this method were used resection would be less often needed. I described and illustrated this method in the *British Journal of Surgery*, Vol. IX., p. 558.

I am, Sir, yours faithfully,

Harley-street, W., Sept. 26th, 1926. ZACHARY COPE.

"MICROBE HUNTERS."

A PUBLIC DENIAL.

To the Editor of THE LANCET.

SIR,—Our attention has been drawn to a book called "Microbe Hunters," recently published by Harcourt, Bruce and Company, New York, and alleged to have been written by one Paul de Kruif—a gentleman whose name is quite unknown to us. The work evidently aims at being a kind of popular history or rather romance regarding medical discovery, and mentions us among others. We should like an opportunity to say, for the information of your readers, that the author's statements about ourselves and our researches are almost entirely apocryphal; that they are not supported by reference to the original literature; that they are clearly derived almost only from his own imagination or from spurious prompting by others; and that his knowledge of the subjects with which we have been concerned is obviously incomplete.

We have been legally advised that some of his assertions regarding ourselves are libellous according to British laws, but in America we have no means of protection except a public denial of the truth of his allegations, and we therefore trust that you will allow us to publish such a denial, as emphatically as we may, in your columns.

Dr. Cuthbert Christy's signature does not appear on this letter as he is in Africa; before sailing, however, he left us the following statement: "With regard to Chapter IX. of Paul de Kruif's book, 'Microbe Hunters,' I beg to emphatically state that it contains statements which are totally erroneous, misleading, and some of them libellous. As an example I will quote paragraph 2, page 264, which reads: 'The third member (viz., myself) became disgusted with the ignorance and failures of his two colleagues and went off prospecting for rubber . . .' This paragraph is absolutely untrue and libellous. I never abandoned my colleagues, and, as a matter of fact, I did not get interested in rubber until 1906, which was three years after the labours of the First Sleeping Sickness Commission were completed."

We are, Sir, yours faithfully,

ALDO CASTELLANI. DAVID NABARRO.
GEORGE C. LOW. RONALD ROSS.

Sept. 27th, 1926.

HELIOTHERAPY IN PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Dr. Chandler's letter in your issue of Sept. 11th (p. 574) advances a reasoned plea in favour of an extended trial of heliotherapy in pulmonary tuberculosis. In the light department of the Royal Free Hospital we have been giving ultra-violet light treatment to cases of active and quiescent pulmonary tuberculosis not only without harm, but with considerable benefit to the majority. These favourable results have not been secured without "buying our experience." For instance, in one case, a patient who had had a persistent backache following an injury, was freed from this pain by one strong erythema dose only to fall a victim to a serious flare up of an old (and unsuspected) pulmonary lesion.

As far as our present experience goes ultra-violet light can be safely given to cases of pulmonary tuberculosis if the following rules be observed.

1. That the initial dose should be one-quarter of the dose that will give the patient an erythema at 20 in., as tested by the "spot" method on the forearm.

2. That this quarter dose be secured by the appropriate increase of distance and not by a diminution of time.

3. That the skin first exposed be the legs and that a gradually increasing area of skin be added day by day. This being the only increase in dosage until the whole body is receiving this quarter erythema dose.

4. That subsequent increase in dosage be obtained by increasing the time of exposure with little or no diminution of the distance.

An accurate record of the weight and morning and evening temperature of these cases should, of course, be kept. In some way which I do not, as yet, understand, certain cases respond better to doses of ultra-violet light from a distance (and among these are cases of pulmonary tuberculosis) than to precisely the same dose, calculated on the inverse square law, when given close to the patient. I should be glad to know whether any of your readers have formed the same opinion from their clinical experience as regards this physical law not being strictly applicable to patients. I am, Sir, yours faithfully,

Park-crescent, W., Sept. 25th, 1926. C. B. HEALD.

PASTEURISATION OF MILK.

To the Editor of THE LANCET.

SIR,—I read Dr. Moore's letter with regret, as I had hoped we were in for a reaction against artificial interference with Nature. Dr. Moore asks for a specific case of the "deplorable results" of sterilised milk. Living in an out-port in China, my little girl was fed on an expensive brand of sterilised fresh milk supplied by a well-known firm; she developed scurvy and paralysis, which was cured by orange juice, raw meat juice sent from Shanghai, and milk supplied by a dirty Chinese from a more or less dirty goat. People to-day seem to forget that the marvellous human system is supplied with means to cope with a certain amount of poison. I have never lived in big cities, but in those places I have been we have never found it necessary to sterilise milk. As to the closing question "if we may cook most foods, why may we not cook one particular food?" surely Dr. Moore has not been reading his LANCET. One case reported there will suffice for many. Two Indian regiments suffered much from beri-beri; it was found that their vegetables were cooked too much; when the amount of cooking was reduced the nerve symptoms ceased. Is it not a recognised fact that the nearer we get to Nature the healthier we are?

I am, Sir, yours faithfully,

C. G. S. BARONSFEATHER.

Bournemouth, Sept. 25th, 1926.

Obituary.

WILLIAM EDWARD MARSHALL, *M.C.*, M.B., CH.B. EDIN., D.P.H.

NEWS has reached this country of the death at Khartoum on Sept. 24th of Major W. E. Marshall, who had only ten days previously taken up his new appointment of Principal Medical Officer, Sudan Defence Force. His death at a comparatively early age removes an officer of proved capacity in the many spheres in which his lot was cast and one who by his unfailing cheerfulness and resource had endeared himself to all with whom he came in contact.

Marshall was a native of Perth and graduated in medicine at the University of Edinburgh in 1902. He was appointed an assistant in the Bacteriological Department of the Lister Institute, London, in 1905, and in the three years during which he held this post he made a number of valuable contributions to bacteriological literature. In 1908 he entered the Royal Army Medical Corps, being attracted by the facilities that service might afford to one possessing his laboratory training combined with a very definite leaning towards the clinical side of medicine. From 1909 to the outbreak of war he was more or less continuously resident in the Sudan, and was largely occupied in the investigation of kala-azar in the region of the Blue Nile. During the war he served in Egypt and France, and in the Hedjaz, where he came into intimate personal contact with Colonel Lawrence and other notables of that picturesque campaign. He was again seconded for service in the Sudan in 1919, and in 1921 his special and sympathetic knowledge of local conditions, language, and people led to appointment as British Agent and Consul at Jeddah, where he successfully combined the duties of physician, administrator of quarantine, and political agent. He returned to this country in 1923, and until a few weeks ago was pathologist at Netley. It was apparent, however, that the spell of Arabia and Egypt clung to him in his post at home and it was with great eagerness that he looked forward to a further sojourn in the Sudan—a sojourn which has proved so brief.

Marshall was unmarried. He leaves behind him a pleasing memory of cheerful and unselfish devotion to duty and the ties of friendship.

Medical News.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special demonstration on common injuries of the eye will be given by Mr. W. H. McMullen at the Royal Westminster Ophthalmic Hospital on Friday, Oct. 8th, at 5 P.M. This will be open to members of the medical profession without fee. A series of Fellowship lectures on emergencies in medicine and surgery will begin on Thursday, Oct. 14th; they will be given at 5 P.M. in the lecture-room of the Medical Society of London, 11, Chandos-street, W.; the full programme may be had on application. The Central London Throat, Nose and Ear Hospital will hold an intensive course in laryngology, rhinology, and otology from Oct. 4th to 23rd. The clinical course may be taken in conjunction with the operative, or separately, but early application is requested for the operative course as the entry is limited. (Fees, 5 guineas and 7 guineas.) From Oct. 18th to 30th there will be an all-day course in diseases of children in which the staffs of the Paddington Green Children's Hospital, the Victoria Hospital for Children, and the Children's Clinic will take part. Beginning on the same day there will be a two weeks' course in gynæcology at the Chelsea Hospital for Women. A two weeks' course in genito-urinary diseases will start on Oct. 18th at St. Peter's Hospital; there will be clinical work, including cystoscopies, every afternoon, as well as lectures. A series of eight clinical demonstrations of tropical diseases will be held twice weekly at 2 P.M., beginning on Oct. 5th, at the London School of Hygiene and Tropical Medicine. Copies of all syllabuses, of the General Course Programme, and of the *Post-Graduate Medical Journal* may be had from the Secretary at 1, Wimpole-street, London, W. 1.

HEALTH WEEK.—The committee appointed by the Royal Sanitary Institute has organised a Health Week from Oct. 3rd to 9th. More than 50 cities and towns are taking the opportunity to emphasise the importance of health problems and arouse the interest of their citizens in personal and social hygiene.

POST-GRADUATE COURSE AT ST. MARY'S HOSPITAL. During the week-end Oct. 2nd to 4th, a course for medical practitioners will be held at St. Mary's Hospital, Paddington, as follows:—Saturday: 10 A.M., Prof. C. A. Pannett, Acute Intestinal Obstruction; 10.45 A.M., Prof. F. H. Langmead on Mental Deficiency in Children; 12 noon, Mr. S. Maynard Smith, Errors in Surgical Diagnosis; 2.15 P.M., Mr. Zachary Cope, Common Fractures and Common Sense; 3.15 P.M., Mr. Aleck Bourne, the Scope of Cæsarean Section. Sunday: 11 A.M., Mr. R. M. Handfield-Jones, Common Surgical Problems (cases); 12 noon, Dr. C. M. Wilson, New Methods and Old Maladies (cases). Monday: 10 A.M., Mr. C. W. Gordon Bryan, Diagnosis of Some Disorders of Joints; 10.45, Dr. Reginald Miller, the Rheumatic Problem in Children; 12 noon, Sir William Willcox, Enteric Infections; 2.15 P.M., Mr. T. G. Stevens, Radium in Gynæcology; 3.15 P.M., Dr. A. F. Hurst, New Applications of Some Old Remedies. These meetings will be held in the library of the Medical School, and are open to all medical practitioners without fee.

LECTURES ON CHILD WELFARE AND CARE OF INFANTS.—A special refresher course of lectures on child welfare for health visitors, nurses, midwives, and others, will be held at the City Hall, Cardiff, on Saturdays, from Oct. 2nd. to 30th. The lecturers will be Dr. J. S. Fairbairn, Lady Barrett, Mr. W. Kittow, Dr. Eric Pritchard, Dr. J. C. Gilchrist, Dr. Ralph Picken, and Dr. Letitia Fairfield. The fee is 10*s.* 6*d.* for the whole course or 1*s.* 6*d.* for single lectures, and application for tickets should be made to the hon. secretary of the National League for Health, Maternity, and Child Welfare, 117, Piccadilly, London, W. 1, or to Dr. Picken, City Hall, Cardiff.—A course of post-graduate lectures on Infant Care, for health visitors, nurses, midwives, superintendents of welfare centres, and others will be given at the Infants Hospital, Vincent-square, Westminster, on Mondays, Oct. 4th to Dec. 6th, from 6.30 to 7.30 P.M., the lecturers being Dr. Margaret Lowenfeld, Dr. Donald Paterson, Dr. Eric Pritchard, Dr. W. E. Robinson, Dr. Margaret Emslie, Dr. A. F. Tredgold, and Dr. F. J. Poynton. Fees: whole course 7*s.* 6*d.*, single lectures 1*s.* Particulars may be had from the secretary, National Association for the Prevention of Infant Mortality, 117, Piccadilly.—A course of elementary lectures on Infant Care especially intended for creche nurses and probationers will be given by Dr. Prudence Gaffikin, at 117, Piccadilly, on Thursdays, Oct. 14th to Dec. 16th, at 7.30 P.M. Tickets (whole course, 10*s.* single lectures 1*s.*), may be had from the secretary of the association at the same address.

UNIVERSITY OF LONDON.—A course of eight lectures on the Special Senses will be given at University College by Dr. R. J. Lythgoe on Mondays and Wednesdays, beginning on Oct. 4th, at 5 P.M.—A course of ten lectures on Histology of Nerve Tissues and Paths of Conduction in the Central Nervous System will be given by Dr. C. Da Fano at King's College, on Thursdays, beginning on Oct. 7th, at 5 P.M.—A course of eight lectures on Biological Oxidation-Reduction will be given by Mr. R. K. Cannan at University College, on Fridays, beginning on Oct. 8th, at 5 P.M. Admission to these lectures is free, without ticket.

University of London: University College. — Dr. L Reuvid and Dr. E. R. P. Williams have been appointed demonstrators in anatomy, and Mr. L. E. Bayliss Sharpey Scholar in Physiology for the coming session.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—On Wednesday next, Oct. 6th, the inaugural sessional address to the Society will be delivered by Dr. James F. Tocher, B.Sc. Aberd., F.I.C., who will be presented on the occasion with the Pereira Medal, a silver medal provided and endowed out of the proceedings of a fund raised by subscription in 1853–54 as a memorial to Dr. Jonathan Pereira, M.D., F.R.S., a former professor of materia medica of the Pharmaceutical Society. The promoters of the fund resolved "that the medal should be awarded as a prize for researches or proficiency in materia medica," and the medal is presented annually for competition among the students in the advanced course in the Society's school. The medal was won this year by Mr. John George Jones.

MEDICAL DEFENCE UNION.—The annual general meeting was held on Sept. 23rd, when the President, Sir Herbert Waterhouse, moved the adoption of the annual report, which has already been referred to in THE LANCET (Sept. 25th, p. 663). In the course of his address he stated that the Council had decided to afford protection to members against whom actions were brought in consequence of the acts or omissions of locum tenents who were not members of a defence society, and had made a reciprocal arrangement with the London and Counties Medical Protection Society about such actions. The report of the Council and the financial statement for the year 1925 were adopted unanimously. Mr. W. T. Lydall, Mr. R. F. Jowers, and Dr. Seymour Taylor were unanimously re-elected members of the Council.

PEOPLE'S LEAGUE OF HEALTH.—The League has arranged a course of eight lectures on the Mind and What We Ought to Know About It, which will begin on Nov. 1st and continue on the following Mondays at 6 P.M. Among the lecturers will be Dr. E. Mapother, Dr. H. Crichton-Miller, Sir Maurice Craig, Sir Robert Armstrong-Jones, and Dr. A. F. Tredgold. A second course to be held on Nov. 3rd and the six Wednesdays after it, will deal with Diet: What We Should Eat and Why; among the lecturers will be Dr. Harry Campbell, Dr. Leonard Hill, Prof. Winifred Cullis, and Prof. W. E. Dixon. All the lectures will be held at 6 P.M. in the rooms of the Medical Society of London, 1, Chandos-street, W. 1. A fee of 10*s.* will be charged for the first course and a fee of 7*s.* 6*d.* for the second. For tickets and other particulars application should be made to Miss Olga Nethersole, at 12, Stratford-place, London, W. 1 (Tel.: Mayfair 0386).

OPENING OF THE MEDICAL SCHOOLS.—The following arrangements have been made in connexion with the opening of medical schools:—

Charing Cross Hospital.—Distribution of prizes by Field-Marshal Sir William Robertson, Wednesday, Oct. 6th, at 3.30 P.M., in the Out-patients' Hall of the Hospital. Annual dinner of past and present students on the same day at 7 for 7.30 P.M., at the Hotel Victoria, Northumberland-avenue.

University of Durham.—At the opening of the winter session of the University of Durham College of Medicine, Newcastle-upon-Tyne, an introductory address will be given by Dr. Charles Oliver Hawthorne, in the Examination Hall of the College, on Friday, Oct. 8th, at 4.30 P.M.

Guy's Hospital.—Distribution of prizes and an inaugural address by Dr. John Fawcett, Tuesday, Oct. 5th, at 3 P.M.

London Hospital.—Annual dinner of past and present students, Thursday, Oct. 21st, at the Trocadero Restaurant, at 7.30 for 8 P.M.

St. Mary's Hospital.—Annual dinner of past and present students, Monday, Oct. 4th, at 7 for 7.30 P.M., at the Connaught Rooms, Great Queen-street, W.C.

St. Thomas's Hospital.—Annual dinner of old students on Friday, Oct. 29th, at 7.30 P.M., at the Hotel Victoria, Northumberland-avenue.

ST. MARK'S HOSPITAL.—The festival dinner of the hospital will be held at the Mansion House on Tuesday, Oct. 26th, at 7 for 7.30 P.M.

NATIONAL INSTITUTE FOR THE DEAF.—Mr. C. M. R. Balbi, Associate Member of the Institute of Electrical Engineers, has been appointed honorary consultant to the Institute.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.—The office of the Association has removed from 20, Hanover-square, London, W. 1, to 19, Tavistock-square, London, W.C. 1 (Telephone: Museum 2577).

QUEEN MARY'S HOSPITAL FOR THE EAST-END.—A new block is to be erected that will give 24 additional beds, house the whole of the office staff, and provide a new board room and committee rooms. The cost will be between £30,000 and £35,000.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL.—Dr. Logan Turner, President of the Royal College of Surgeons of Edinburgh, will deliver an address on Some Aspects of Intracranial Infection of Nasal Origin at the opening of the winter session of the hospital on Friday, Oct. 15th, at 4 P.M.

NEUROLOGICAL CONFERENCE AT OSLO.—The Third Scandinavian Neurological Congress was held in Oslo on Sept. 17th and 18th under the presidency of Prof. Monrad-Krohn. The first day was devoted to reports and communications on neurosyphilis, and an interesting communication was read by Dr. Dahlström, who said that metalues was exceedingly rare amongst patients treated according to the principles of the late Prof. Boeck, of Oslo, an antimercurialist. On the second day Dr. Gundersen, of Oslo, raised the question of a possible close relation of epidemic encephalitis to epidemic parotitis. From epidemiological observations in Norway he showed the probability of a very close connexion between the two diseases. Prof. F. Henschen discussed the physiology of binocular vision, and in another communication pleaded the necessity of assuming the existence of an agraphic centre. Dr. Hansen related observations of a disease which he considered to be identical with Huntingdon's chorea and claimed that this disease was observed and described by a local practitioner in Norway long before Huntingdon. It was decided to hold the Fourth Neurological Congress at Helsingfors in 1929.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

PARLIAMENT reassembled on Monday, Sept. 27th, in order to renew the Regulations under the Emergency Powers Act in connexion with the stoppage in the coal industry.

HOUSE OF COMMONS.

MONDAY, SEPT. 27TH.

Hours of Work in Poor-law Hospitals.

On the motion for the adjournment of the House,

Miss SUSAN LAWRENCE said that many boards of guardians were becoming seriously indebted and were coming within the ambit of the Act passed last summer with the result that the Minister of Health could supersede them and administer relief through official nominees. It was therefore important to know on what principles the Minister of Health was administering relief. If, as appeared to be likely, more and more guardians came under the direct control of the Minister it was only reasonable to ask what were the principles upon which he acted. One of the first things which was done in the West Ham Union was to increase the hours of labour in the infirmary from 48 to 56 per week. The people concerned were sick nurses, sick attendants, and other officials of the hospital. Their union approached the nominee guardians and these admitted, according to the union's statement, that it was intended that consequent upon the increase in hours dismissals should take place. Eleven sick room attendants had already been dismissed, and it was anticipated in the locality that more were going. It would be bad enough if this were done in the London infirmaries, but it was much worse in connexion with the West Ham Infirmary for this reason—that in the case of the London infirmaries cancer and venereal disease cases were removed

to the Metropolitan Asylums Board hospitals where there was a 48-hours week. In adopting the 48-hours week the Metropolitan Asylums Board had no doubt borne in mind the notorious fact that there was no nursing so difficult, or which made so great a claim on the attention and physical strength of the nurses, as the nursing of the last stages of cancer cases or venereal disease cases. It was only by constant lifting of these patients that they escaped suffering in a very painful manner, and the first fruits of the model administration by the Minister of Health was just this—that the dying got less alleviation of their pain than formerly. These women and men were only human and they could not put as much work into a 12-hour shift as they did into a 8-hour shift. The nurses were on duty for two 12-hour shifts instead of three 8-hour shifts and with fewer numbers and longer hours it was impossible that the sick could be nursed as well as they were previously.

Mr. LAWSON said that in the coal-fields the situation was terrible. In the Chester-le-Street area, which he represented, gentlemen who were taking charge of affairs were more interested in giving proof of their ability to practise economy than in carrying out the principles of the Poor-law. The reason why the work of the Chester-le-Street guardians was taken over primarily was a dispute as to whether the young men were destitute or not. He thought that the Minister of Health might have done what the Scottish Board of Health did when there was a dispute and they could not get doctors to examine the cases. He might have sent doctors from headquarters in order to settle the question as to whether the men were destitute or not.

Mr. NEVILLE CHAMBERLAIN (Minister of Health) said that he must point out to Miss Lawrence and Mr. Lawson that under the Act passed this summer the present boards of guardians in West Ham and Chester-le-Street were not Special Commissioners, but boards of guardians for those unions—at any rate, for the time being—and the relations between them and the Ministry of Health were precisely the same as those between the Ministry and any other board of guardians. He had no more power over them than he had over any other board.

Mr. LYNN: You choose them.

Mr. NEVILLE CHAMBERLAIN: The hon. Member does not seem to remember the wording of the Act of Parliament. Parliament gave me the power to choose them, but it did not give me the power to dictate their policy. Continuing, the right hon. gentleman said that all he could do if he had a complaint of these guardians' action was to draw their attention to the complaint and to inquire what observations they had to make. That was precisely the course he had taken in the matter of the hours of the infirmary employees in West Ham. A deputation had been received at the Ministry of Health and the statements of the deputation were forwarded to the board of guardians for their observations, which had not yet been received. It was quite untrue to say that the dismissals of these servants were subject to his sanction. If the hon. Member had cases which he thought were cases of hardship or where guardians were not carrying out their duties he asked him to let him have particulars and he would forward them to the board and ask for their observations.

Dr. WATTS said he was continually struck by the objections to putting in more hours of labour on a healthy occupation such as that of mining. Mining was with one exception the healthiest occupation in the country. It was second only to that of the agricultural labourer. If hon. Members doubted that statement he would refer them to the statistics of the Registrar-General. There were very few diseases to which miners were specially prone and they were certainly not fatal diseases.

TUESDAY, SEPT. 28TH.

Boards of Guardians and Relief.

In reply to questions,

Mr. NEVILLE CHAMBERLAIN said that it was not the duty or the practice of boards of guardians to report changes in their administration or scale of relief, which they might use for their guidance, but he had been informed of reductions in scales made since May 1st in 42 instances. He knew of no case where a board of guardians ceased to grant any relief to dependants of those involved in the present coal stoppage, but six boards were reported to have decided that only indoor relief should be granted in these cases. Such a decision was within the discretion of the guardians so far as regarded applications considered by them, but nothing could interfere with the duty of a relieving officer to deal as might be required with any case of sudden or urgent necessity. He had no reason to suppose that boards of guardians were not fully discharging their duties in the matter.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Oct. 5th.—5.30 P.M., ORTHOPÆDICS (Cases at 5 P.M.). Mr. Alan H. Todd, Mr. D. McCrae Aitken, and others. Mr. Paul Bernard Roth: Osteitis Deformans Affecting Chiefly the Skull and Pelvis. *Presidential Address:* Dr. W. T. Gordon Pugh: Orthopædics at a Country Children's Hospital (illustrated).

FRIDAY.—5.30 P.M., CLINICAL (Cases at 5 P.M.). Dr. L. S. T. Burrell, Dr. Bernard Myers, Dr. J. H. Sheldon, Dr. C. F. T. East, Dr. Douglas Firth, and Dr. J. L. Livingstone.—8.30 P.M., OPHTHALMOLOGY (Cases at 8 P.M.). *Presidential Address* by Mr. Ernest Clarke. *Epidiascope Demonstration:* Dr. Rayner Batten: Drawings of Macula Colobomata.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Oct. 4th, to SATURDAY, Oct. 9th.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross. Special demonstration on Common Injuries of the Eye, by Mr. W. H. McMullen, at 5 P.M. on Oct. 8th. This demonstration is open to medical men, without fee.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road. Intensive Course in Clinical Laryngology, Rhinology, and Otology. Operative class also.—LONDON SCHOOL OF TROPICAL MEDICINE, Endsleigh-gardens, N.W. Tues., 2 P.M., Dr. G. C. Low, clinical demonstration. Thurs., 2 P.M., Dr. Manson-Bahr, clinical demonstration. Further information from the Secretary of the Fellowship of Medicine.

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-square.

WEDNESDAY, Oct. 6th.—9 P.M., Sir James Dundas-Grant will open a discussion on Some Clinical Experiences.

THURSDAY.—9 P.M., Mr. Bedford Russell will open a discussion on Tonsillar Remains. All medical practitioners cordially invited.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Oct. 5th.—5 P.M., Dr. J. H. Stowers: Introductory Lecture.

THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Anatomy of the Skin.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.

THURSDAY, Oct. 7th.—4 P.M., Dr. Cockayne: Rickets as it is seen to-day.

NATIONAL HOSPITAL, Queen-square, Bloomsbury, W.C.

MONDAY, Oct. 4th.—2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Adie: Disseminated Sclerosis.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Bernard Hart: The Psychoneuroses.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Martin: Hemiplegia.

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Symonds: The Pathogenesis and Treatment of Cerebral Vascular Disease.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSES.

TUESDAY, Oct. 5th.—4.15 P.M., Dr. F. Craven Moore: Early Diagnosis of Cancer of the Stomach.

FRIDAY.—4.15 P.M., Dr. C. Powell White: Modern Views as to the Cause of Cancer.

ST. MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester.

WEDNESDAY, Oct. 6th.—4 P.M., Dr. N. C. Haring: The Treatment of Consumption in Young Girls.

ANCOATS HOSPITAL, POST-GRADUATE COURSE.

THURSDAY, Oct. 7th.—4.15 P.M., Mr. Harry Platt: Treatment of Common Injuries, Sprains and Minor Injuries of Joints, Muscles, and Tendons.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.

TUESDAY, Oct. 5th.—4 P.M., Dr. A. Maitland Ramsay: Introductory Address: The Muscle of the Heart, the Intestinal Tract, the Iris and the Ciliary Body—an Analogy and a Contrast. Discussion to be opened by Prof. Waterston.

Appointments.

BACK, MARJORIE, M.D. Lond., D.P.H., has been appointed Maternity Doctor under the Swansea Health Authority.

HOWELL, B. WHITCHURCH, F.R.C.S. Eng., Orthopædic Surgeon to St. Michael's Home for Crippled Children, Clacton-on-Sea.

YOUNG, W. A., M.D., Ch.B. Edin., D.P.H. Camb., Medical Officer of Health for Poplar.

Certifying Surgeons under the Factory and Workshop Acts: CHADWICK, J. W., L.R.C.P. Lond., M.R.C.S., Bollington District of the County of Chester; SUMMERHAYES, J. O., L.R.C.P. Lond., M.R.C.S., Newhaven District of the County of Sussex.

Royal Manchester Children's Hospital: STENT, Miss L., M.B., Ch.B., Assistant Medical Officer at Out-patients' Department; BACON, W. B., M.B., Ch.B. Manch., Resident Medical Officer at Pendlebury; SEED, N. F., M.B., Ch.B. Manch., Resident Surgical Officer at Pendlebury.

Salford Royal Hospital: ROANTREE, W. B., M.B., B.Ch., B.A.O. Dub., House Physician; SAVAGE, W. E., M.R.C.S., L.R.C.P., House Surgeon (attached to Orthopædic Department); WARBURTON, E. J., M.B., Ch.B. Manch., M.R.C.S., L.R.C.P., House Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Barbados General Hospital.—Senior Res. S. £300.
Belgrave Hospital for Children, 1, Clapham-road, S.W.—H.S. and Asst. H.P. At rate of £100 each.
Bloomsbury Dispensary, 12, Bloomsbury-street, W.C.—Surg. 100 guineas.
Brighton, Royal Alexandra Hospital for Sick Children.—Hon. Consulting S., Hon. S., and Hon. Asst. S.
Cambridge, Addenbrooke's Hospital.—H.P. At rate of £130.
Cardiff City Mental Hospital, Whitchurch.—Sen. Asst. M.O. £550.
Croydon County Borough.—Asst. M.O. £600.
Croydon General Hospital.—Pathologist and Bacteriologist (Part-time.)
Derbyshire Royal Infirmary, Derby.—Two H.S.'s and Asst. H.S. and Cas. O. Each at rate of £150.
Edinburgh University, Physiology Dept.—Asst.
Gravesend Hospital, Kent.—Jun. H.S. £150.
Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Reg.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P. and Cas. M.O. Each at rate of £100.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. At rate of £150. Also Pathologist, &c. £750. Also H.P. £50 for six months.
Leeds, St. James' Hospital, Beckett-street.—Chief M.O. £1000.
Liverpool City.—Medical Visitor under Lunacy Act, &c.
Manchester, Royal Infirmary, Roby-street.—Asst. M.O. At rate of £100.
Manchester, St. Mary's Hospital.—Two H.S.'s. Each at rate of £50.
Middlesex Hospital, W.—Phys. and Asst. Phys.
National Dental Hospital, Great Portland-street, W.—Hon. Anæsthetist.
North Middlesex Hospital, Edmonton, N.—Surgeon-Oculist. £1 1s. per hour.
Otago Hospital Board, Dunedin, N.Z.—Med. Supt. £1000.
Paddington Green Children's Hospital, W.—H.P. and H.S. Each £150.
Preston Royal Infirmary.—H.P. £190.
Queen's Hospital for Children, Hackney-road, E.—P. in charge of Skin Dept.
Reading, Royal Berkshire Hospital.—Third H.S. £150.
Royal Chest Hospital, City-road, E.C.—Res. M.O. At rate of £150. H.P. At rate of £100, and Anæsthetist. 10 guineas.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £150. Also Res. Asst. Pathologist. £150.
Royal National Orthopædic Hospital, 234, Great Portland-street, W. Surg. Reg. 100 guineas.
Salford City.—Bacteriologist. £600.
Salford Royal Hospital.—Radiologist. £300.
Stockton and Thornaby Hospital, Stockton-on-Tees.—Third Res. M.O. £150.
Swansea Hospital.—H.P. At rate of £150.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Cas. O. and Reg. £150.
Walsall General Hospital.—Sen. H.P. and Jun. H.S. At rate of £200 and £125 respectively.
West End Hospital for Nervous Diseases, Welbeck-street, W.—Hon. Reg.
Willesden General Hospital, Harlesden-road, N.W.—Res. H.S. and Non. Res. Cas. O. Each at rate of £100.
Windsor, King Edward VII. Hospital.—Hon. Asst. Anæsthetist to Ear, Nose, and Throat Dept.
Worksop, Victoria Hospital.—H.S. At rate of £170.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Birmingham, West (Warwickshire), and Newquay (Cornwall).

Births, Marriages, and Deaths.

BIRTHS.

FABER.—On Sept. 24th, at Chichele-road, Cricklewood, N.W., the wife of Dr. Hamilton S. Faber, of a son.
RODD.—On Sept. 25th, at Avenue-road, N.W., the wife of Captain A. Rodd, R.A.M.C., of a daughter.
SMITH.—On Sept. 25th, at Peckham-road, S.E., the wife of Dr. Kenneth V. Smith, of a son.

MARRIAGES.

ELLIOTT—ROBINSON.—On Sept. 23rd, at the Parish Church, Knotty Ash, S. E. Y. Elliott, M.R.C.S., L.R.C.P., to Irene, only daughter of A. Robinson and of the late Mrs. Robinson, Broadgreen, Liverpool.
HORNE—MOCLAIR.—On Sept. 8th, at St. Andrew's, Westland-row, Dublin, Andrew J. Horne, M.A., M.D., to Delia Moclair, M.B., D.P.H.
MOOR—STORRS.—On Sept. 21st, at Rochester Cathedral, Frewen Moor, *M.C.*, M.A., M.D., of Westgate-on-Sea, to Lucy Petronella Noel, younger daughter of the Very Rev. John Storrs, D.D., Dean of Rochester, and the late Hon. Mrs. Storrs.

DEATHS.

IEVERS.—On Sept. 22nd, suddenly, at St. Leonards, Eyre Ievers, M.D., C.M., late of Tonbridge, aged 78.
NICOLL.—On Sept. 25th, suddenly, at Braemar, Aberdeenshire, P. J. S. Nicoll, M.D., J.P., of Romford-road, Stratford, London.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE POST-GRADUATE HOSTEL.

SOME RECENT ADDRESSES.

THE evening meetings at the Post-Graduate Hostel (now housed at the Imperial Hotel, Russell-square, W.C.) have provided already an opportunity for the reading of interesting addresses upon clinical and upon broadly professional subjects, which have given rise to informal debates. These interchanges of views and experiences will become more useful as the facilities offered by the hostel are more widely recognised and the audiences grow larger. The activities of the organisation have been announced from time to time in THE LANCET, the subjects of debate and the openers being stated, with dates and times. All members of the medical profession are invited to be present and to participate in the discussion.

Among recent addresses, given as openings to debates, have been one from Prof. J. E. Frazer on the clinical bearings of certain embryological defaults—this is referred to elsewhere (see p. 718); one from Dr. Clark Trotter, the medical officer of health for the Borough of Islington, who dealt with the relation of the general practitioner to the health officer; and one from the Editor of THE LANCET upon signed contributions by medical men to the lay press.

The General Practitioner and the Health Officer.

Dr. Trotter reviewed the relations of the general practitioner to the health officer from a view which enabled him to give anecdotal illustrations of the particular principles which should regulate the relations. Dr. Trotter said that he began the study of medicine when unqualified assistants were in existence and, while admitting that in the general interests of the public and the profession they had to disappear, he was of opinion that with their disappearance there went also a large amount of that interest in the problems of midwifery and in the treatment of women and children which was at one time a feature of general practice; while the panel system had replaced club practice it had also altered a whole side of private practice. The following description of an old-time practitioner will be recognised as sufficiently accurate. "This man started from his medical school equipped with the up-to-date teaching of his time and possessed with one of the earliest clinical thermometers about a foot and a half long, which took about half an hour to register the temperature. His business instinct was strong; he kept up the counterfoils of his notification book, to make sure his fees tallied. Visiting a poor house with him when asked to see a case, one noted he lagged behind when leaving to collect his eighteenpence. With such fees this general practitioner acquired wealth, erecting a statue in his town to Queen Victoria, for no other object than to show his nephews that he might spend as he liked and not necessarily leave his money to them."

Dr. Trotter went on to mention his experiences with a general practitioner "who specialised in specialists," and and with others who were too ready to suppress clinical instincts and to substitute for considered diagnosis indiscriminate swabbing; and added a short review of the responsibilities incurred by both general practitioner and medical officer under the increasing array of enactments and orders in respect of public health and especially of housing. He commended the activities of welfare centres and child welfare schemes, but found that such schemes were not always regarded with favour by doctors who here failed to meet a public demand upon them which was reasonable if they wished to maintain the position of family physician. In detailing the duties of the health officer in respect of home sanitation and the incidence of disease, he urged that the health officer should give close attention to applications for housing accommodation, and to all questions of overcrowding, for here he should come into contact with the general practitioner of his area in a manner which must be mutually advantageous. A health officer cannot provide housing accommodation, he said, adding that, in the opinion of a High Court Judge, any family could keep poultry in a bedroom if they liked, as there was no law to prevent such an action. A stimulating address closed with the warning note that public health work is becoming now so specialised that health officers who have had no opportunities of studying the conditions of general practice should take every chance of doing so in their own areas.

Medical Communications to the Lay Press.

The Editor of THE LANCET began by pointing out that the apparently logical general conclusion that the public dissemination of medical information is good must be received with considerable reservations. It was necessary, he said, to consider the way in which the information is published as well as its character; where the public need for the information was clear the public ought to be able to get it from responsible

medical authorities, but this did not necessarily mean that a particular medical man should write a signed article. He held that it ought not to be beyond the ambition of responsible newspapers to provide these sound medical articles in editorial unsigned form, as is done, for instance, in the matter of political communications. Newspapers should be proud to rely upon their own prestige as a guarantee to their readers that only information was being given which was needed, and which was obtained from properly informed sources. At the same time it was admitted that, as the public laid particular stress upon the signature, the attitude of editors in trying to obtain the signed information was reasonable. The kind of article was then indicated briefly which clearly could be signed, both with public advantage and without professional inconvenience, and it was shown how this differed from the kind of article which would fall under the unfavourable notice of the General Medical Council or of the ethical committee of the British Medical Association. The articles which led to censure, and in the case of the General Medical Council to penal interference, were especially those whose contents wore an advertising appearance, this usually taking the form of giving advice on disputed pathological questions with an assumed superiority of knowledge. The speaker allowed and deplored the difficulty of exactly appraising communications as professional or unprofessional, because the situation led to public criticism of the General Medical Council for subjecting some members of the medical profession to penalties while leaving others alone. He wished accordingly that the General Medical Council would publish more details of some cases which had come under their penal jurisdiction, thus enabling the public to appreciate the reasons for any action taken, and doing away with a good deal of mischievous misunderstanding.

In a debate which followed, Mr. McAdam Eccles drew attention to the various kinds of signature employed by writers of articles, and referred especially to the printing of accompanying photographs and noticeable headlines.

Dr. Alfred Cox said the whole subject was a source of much anxiety to the British Medical Association, which was constantly charged with inconsistency. He thought it desirable that the public should have sound information about medical matters, but that the prestige of the profession was being lowered by the flood of signed communications to the press. He agreed that the appearance of medical articles in journals of good repute should be a guarantee of the author's standing without any signature, and that further information from the General Medical Council would be helpful.

Dr. P. H. Manson-Bahr, Dr. Clark Trotter, and Dr. Andrew Balfour also thought that sound medical information should be disseminated to the public, and the last, citing an experience in the United States, pointed out that medical news might be examined by a medical authority before it was published.

"MYOPLASTIC SUSPENSION."

UNDER this title Dr. E. M. Neville describes a method which his anatomical studies have led him to advocate for the support of displaced abdominal organs. His method is based upon the surgical principle that musculo-tendinous flaps cut in appropriate manner from neighbouring musculature are the most effective means for ensuring strength and adequate function in any suspension mechanism. Its application is manifold.

(1) *To the Misplaced Uterus.*—Instead of using the weak round ligament in the modified extraperitoneal Gilliam method a musculo-tendinous flap, cut from the distal and mesial portion of each half of the rectus abdominis muscle, is used for suspending the uterus, the defect in the abdominal wall being easily repaired.

(2) *To Severe Gastroptosis and Dilatation of the Stomach.*—A musculo-tendinous pedicle flap is cut from a selected part of each external abdominal oblique muscle, brought through the anterior abdominal wall, external to the rectus muscle and embedded, after reflection of suitable flaps of the serous coat, in the anterior wall of the stomach. The serous flaps are then wrapped and sewn round the intraperitoneal portions of the musculo-tendinous pedicle flaps. The stomach is thereby suspended in hammock-like fashion, retaining its freedom of mobility. The anterior abdominal wall is easily repaired.

(3) *To the Movable Kidney.*—A musculo-tendinous flap of the posterior part of the external abdominal oblique muscle is brought through the internal abdominal oblique muscle and the transversalis muscle and attached to the kidney which thereby is underslung. The latissimus dorsi muscle is utilised for covering over any defect by means of a suitable tendinous flap cut from it and sewn to the edge of the oblique muscle. The method may be combined with a suspension from the twelfth rib.

Dr. Neville goes on to suggest that myoplastic pedicle flaps may be used for other surgical purposes, such as the repair of a weak abdominal wall, especially after herniotomy and for recurrent and secondary ventral hernias. A myoplastic pedicle flap may be cut from the tensor fasciæ femoris muscle, brought across the inguinal region deep to Poupart's ligament, and implanted on the region selected for strengthening or repair. In certain cases this muscle may be used for suspending the uterus extraperitoneally.

LOOKING AT PICTURES.

IT was a happy idea of Messrs. Duckworth and Company to issue "The Picture Galleries Series," [1] being brief notes on the contents of the large art galleries of the country, written in each case by an official of the gallery and including a certain number of illustrations which are particularly explanatory of the text. To medical men, so many of whom delight in pictures and not a few of whom have some measure of artistic accomplishment, these publications may specially appeal because of the explanations which are given of the place which particular painters hold in the estimation of judges. The notes supply information on the influences which prevailed at certain dates in the schools of the different countries, so that we learn to perceive what one master derived from another and who made the great departures which have influenced pictorial art permanently. All the volumes, like the two under notice, should make the time spent in the galleries both more interesting and more informatory. The assistant keeper of the Tate Gallery is very frank in his criticism of certain later nineteenth century Academicians, but all his views will not be endorsed. He does not seem to understand that the motives for making a picture may be complex in his desire to keep the illustrator in his place.

A REGISTER FOR RECORDING THE PURCHASE OF DANGEROUS DRUGS.

A CONVENIENT register arranged for recording the purchases of Dangerous Drugs, by practitioners who do not do their own dispensing, has recently been issued by H. T. Woodrow and Co., 3, Cook-street, Liverpool. We may remind our readers that the keeping of such a register is now compulsory. The register is divided into four sections for entries of purchases containing morphine, cocaine, diamorphine, and medicinal opium respectively. Columns are provided for the date on which the supply was received, the name and address of the person, or firm whence it came, the amount of the drug, and the form in which it was obtained. A column headed "remarks" is to be used for correction or alteration of any entry, no obliteration or erasure being allowed. A summary of those clauses of the regulations now in force that relate to medical practitioners is included in the register, also a list of preparations exempted from the regulations.

GROWTHS IN PLANTS AND MAN.

WE have received from Dr. John Brown, in the course of his conduct of a campaign against cancer, a request for views on free clinics in relation to the disease and on, among other things, the biological range of cancer. The arguments for and against free clinics in this connexion were briefly stated in our columns a fortnight ago (see THE LANCET, Sept. 18th, p. 611). With regard to the biological range of cancer, Dr. Brown suggests that a book is needed as "An Introduction to the Study of the Etiology and Prevention of Tumours in Plants, Trees, and Animals, with special reference to the Racial Incidence of Cancer in Man." There is a huge medical and a huge botanical literature to consult already, and until, by study of these and experimentation, some more definite analogies between the action, say, of lichens and galls and the pathological manifestations of malignant disease are established, it is difficult to know what the terms of reference of the book which he asks for would be. Dr. Brown considers that it should be "complemental to human cancer by experts in the new sciences of modern biology," words which certainly open up a large field if we understand them rightly. It may be admitted that the cancer problem is linked with the problem of neoplastic growths in general, and it is common knowledge that many people have been studying kindred conditions in the animal and in the vegetable kingdom in the attempt to arrive at some deductions which should be of general use. Revelations of practical application have not yet been made, probably because there are not yet sufficient indications for a path of research along which scientific medicine and scientific botany can proceed in company.

ERRATUM.—In a note last week upon a new tracheotomy tube the original model should have been attributed to the late Mr. R. W. Parker, and not to Mr. Rushton Parker.

[1] Hours in the Wallace Collection. By Philip Hendy. With 16 plates and a preface by S. J. Camp. Pp. 138. 2s. 6d. Hours in the Tate Gallery. By J. J. Manson. With 16 plates and an introduction by Charles Aitken. Pp. 144. 3s. 6d.